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## STAPHYLOCOCCAL INFECTIONS IN CANADIAN HOSPITALS\*

DURING THE last few years there has been a resurgence of interest in hospital infections with particular reference to staphylococcal disease.

In this country an Associate Committee of the National Research Council on Control of Hospital Infections was set up in 1957 under the chairmanship of Dr. E. G. D. Murray. Members of the committee, drawn from all over Canada, represent expert opinion on all phases of hospital infection, and include clinicians, bacteriologists, epidemiologists, nurses, and housekeepers.

One of the first steps taken by the committee in co-operation with the Epidemiology Division of the Department of National Health and Welfare was to establish a system of voluntary reporting by Canadian general hospitals.

The first results from this notification system are shown in the present report, which will be amplified and extended at a later date.

The present report is a summary of information by 45 hospitals to the Associate Committee, covering the period October 1, 1958, to March 31, 1959.

It should be noted that this preliminary six-month summary is based only on data from hospitals which submitted *complete* reports for the period October 1, 1958–March 31, 1959. It does not include other hospitals which commenced reporting to the National Research Council Associate Committee after October 1958.

A further report covering the period January 1959 to June 1959 will be forthcoming and will include results from all hospitals which have forwarded *complete* statistics for this period.

Although hospitals reported infected patients under two broad categories of "infected when admitted" and "infected in hospital", only the latter will be discussed in this report. These "infected in hospital" patients were reported in either of two groups, "doubtful" or "active", with a further breakdown in each group of "confirmed" and "not confirmed."

## DEFINITIONS

1. Doubtful infection: where exudates, sputa, . . . show staphylococci, but clinical activity is absent.
2. Active infection: where there is severe infection or any definite lesion, such as a boil or a wound with inflammation.
3. Confirmed infection: where staphylococci have been cultured and identified (at least by the coagulase test).
4. Not confirmed: staphylococci are seen on smear only, or diagnosis is inferred from the nature of the lesion.

The original reporting form provided for infections to be reported under five services—medicine, surgery, obstetrics, nursery and paediatrics—with two blank categories for special services such as are found in the larger hospitals. For tabulation purposes, these special services were grouped as follows: (a) Under surgery: ear, nose and throat, ophthalmology, gynaecology, orthopaedics and urology. (b) Under medicine: tuberculosis and dermatology. (c) Under a separate group, designated as "chronic", were: geriatrics, psychiatry, and domiciliary care, as well as those patients reported as "chronic cases".

A column was provided for infections occurring among the hospital personnel but these infections were not sufficiently well reported to enable tabulation and compilation.

Table I gives the hospital code number, the total admissions for all services, the number of active infections for all services, the number of doubtful infections for all services, and the rate per 1000 admissions for these last two groups.

Table II gives the hospital code number, the number of admissions in surgery and medicine respectively, the number of active infections and the rate per 1000 admissions in each service.

Table III provides the "active infection" rate per 1000 admissions in medicine, surgery, obstetrics, nursery and paediatrics, based on statistics from 45 hospitals.

In the chart, "Infection Rates per 1000 Admissions in 45 Hospitals", the hospitals are arranged in order of their number of admissions from lowest to highest.

\*Prepared by the National Research Council Associate Committee on Control of Hospital Infections. National Research Council, Sussex St., Ottawa.

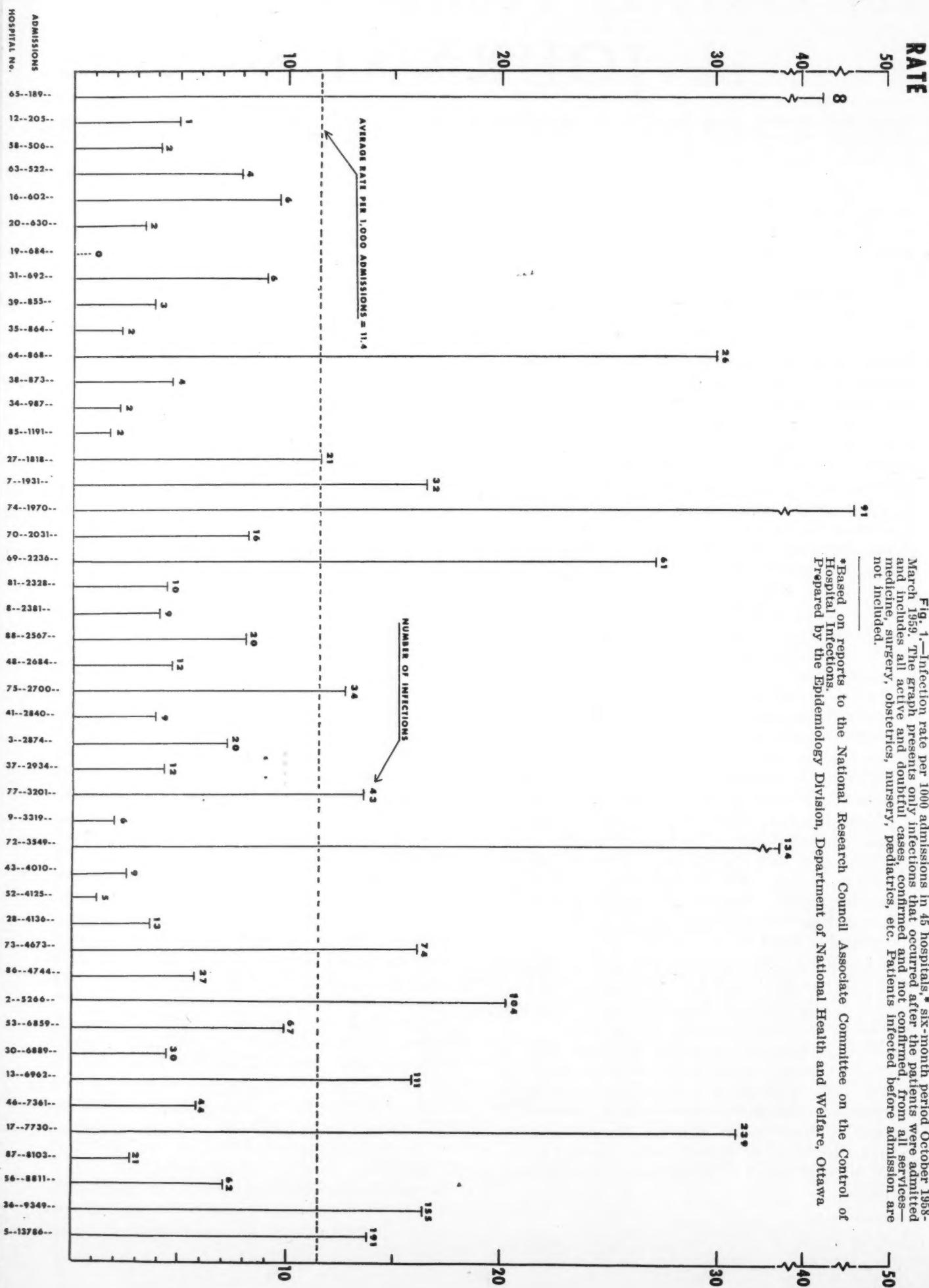


Fig. 1.—Infection rate per 1000 admissions in 45 hospitals.\* six-month period October 1958-March 1959. The graph presents only infections that occurred after the patients were admitted and includes all active and doubtful cases confirmed and not confirmed from all services—medicine, surgery, obstetrics, nursery, paediatrics, etc. Patients infected before admission are not included.

\*Based on reports to the National Research Council Associate Committee on the Control of Hospital Infections. Prepared by the Epidemiology Division, Department of National Health and Welfare, Ottawa.

TABLE I.—STAPHYLOCOCCAL INFECTIONS DEVELOPED IN HOSPITALS. A SUMMARY OF COMPLETED REPORTS TO THE NATIONAL RESEARCH COUNCIL ASSOCIATE COMMITTEE ON THE CONTROL OF HOSPITAL INFECTIONS FROM 45 HOSPITALS FOR THE SIX-MONTH PERIOD OCTOBER 1, 1958, TO MARCH 31, 1959

Hospital code number	Total admissions, all services (6 months)	Active infections*, all services		Doubtful infections, all services	
		Number	Rate per 1000 admissions	Number	Rate per 1000 admissions
2	5266	80	15.2	24	4.5
3	2874	6	2.1	15	5.2
5	13,786	122	8.8	69	5.0
7	1931	30	15.5	2	1.0
8	2381	8	3.4	1	0.4
9	3319	4	1.2	2	0.6
12	205	1	4.9	—	—
13	6962	80	11.5	31	4.4
16	602	6	10.0	—	—
17	7730	219	28.3	20	2.6
19	684	—	—	—	—
20	630	1	1.6	1	1.6
27	1818	10	5.5	11	6.0
28	4136	8	1.9	5	1.2
30	6889	21	3.0	9	1.3
31	692	3	4.3	3	4.3
34	987	1	1.0	1	1.0
35	864	1	1.2	1	1.2
36	9349	135	14.4	20	2.1
37	2934	10	3.4	2	0.7
38	873	4	4.6	—	—
39	855	3	3.5	—	—
41	2840	8	2.8	1	0.3
43	4010	6	1.5	3	0.7
46	7361	23	3.1	21	2.8
48	2684	12	4.5	—	—
52	4125	3	0.7	2	0.5
53	6859	48	7.0	19	2.8
56A	8811	48	5.4	14	1.6
58	506	2	3.9	—	—
63	522	4	7.7	—	—
64	863	24	27.6	2	2.3
65	189	8	42.3	—	—
69	2236	39	17.4	22	9.8
70	2031	15	7.4	1	0.5
72	3549	96	27.0	38	10.7
73	4673	60	12.8	14	3.0
74	1970	91	46.2	—	—
75	2700	31	11.5	3	1.1
77	3201	24	7.5	19	5.9
81	2328	7	3.0	3	1.3
85	1191	2	1.7	—	—
86	4744	25	5.3	2	0.4
87	8103	20	2.5	1	0.1
88	2567	5	1.9	15	5.8
Total	153,835	1354	8.8	397	2.6

\*Infected while in hospital, including "confirmed" and "not confirmed" cases.

Prepared by the Epidemiology Division, Department of National Health and Welfare, Ottawa, for the National Research Council Associate Committee on Control of Hospital Infections.

Table IV indicates those cases which were infected before admission to hospital.

#### COMMENTS

This preliminary analysis reveals that in the 45 hospitals reporting during the six-month period October 1958 to March 1959:

1. There was considerable variation in the infection rates among hospitals.

TABLE II.—STAPHYLOCOCCAL INFECTIONS DEVELOPED IN HOSPITALS. A SUMMARY OF COMPLETED REPORTS TO THE NATIONAL RESEARCH COUNCIL ASSOCIATE COMMITTEE ON THE CONTROL OF HOSPITAL INFECTIONS FROM 45 HOSPITALS FOR THE SIX-MONTH PERIOD OCTOBER 1, 1958, TO MARCH 31, 1959

Hospital code number	Total admissions (6 months)	Surgery		Medicine	
		Number	Rate per 1000 admissions	Number	Rate per 1000 admissions
2	2074	46	22.2	1216	18
3	835	3	3.6	819	2
5	5067	89	17.6	1948	25
7	754	25	33.2	454	—
8	860	9	9.3	635	—
9	982	3	3.0	837	1
12	60	1	16.7	90	—
13	4529	69	15.2	2433	11
16	204	3	14.7	144	—
17	4126	146	35.4	2392	40
19	173	—	—	212	—
20	214	—	—	124	—
27	683	7	10.2	295	1
28	1368	6	4.4	1211	1
30	1539	15	9.7	1511	3
31	147	—	—	155	1
34	318	1	3.1	171	—
35	191	—	—	294	1
36	3753	96	25.6	1011	14
37	886	5	5.6	925	5
38	283	2	7.1	446	2
39	363	3	8.3	174	—
41	1243	7	5.6	363	—
43	908	—	—	1202	2
46	2523	16	6.3	1484	1
48	811	6	7.4	568	3
52	1095	1	0.9	1116	—
53	3145	31	9.8	1521	14
56A	1897	15	7.9	4527	27
58	85	1	11.8	110	1
63	29	1	33.5	211	1
64	175	9	51.4	304	12
65	—	—	—	189	8
69	846	20	23.6	1390	19
70	719	9	12.5	1312	6
72	1648	44	26.7	1834	51
73	2014	38	18.9	2659	22
74	759	8	10.5	1163	41
75	1099	12	10.9	1567	11
77	1359	9	6.6	1842	15
Total....	55,068	790	14.3	44,529	373
					8.4

\*Infected while in hospital, including "confirmed" and "not confirmed" cases.

Prepared by the Epidemiology Division, Department of National Health and Welfare, Ottawa, for the National Research Council Associate Committee on Control of Hospital Infections.

2. The infection rate was not related to the number of admissions.

3. The average infection rate was rather low compared with previous reports in the literature.

4. Out of 55,068 surgical admissions, active cases of staphylococcal infection were contracted in hospital in 790, while 1264 were admitted with infection.

TABLE III.—STAPHYLOCOCCAL INFECTIONS DEVELOPED IN HOSPITALS.<sup>1</sup> AVERAGE INFECTION RATES IN SELECTED SERVICES FOR THE SIX-MONTH PERIOD OCTOBER 1, 1958, TO MARCH 31, 1959.

	Medicine	Surgery	Obstetrics	Nursery	Pædiatrics
Total admissions.....	44,529	55,068	21,289	19,167	11,758
Total number of active infections*.....	373	790	22	86	27
Active infection rate per 1000 admissions.....	8.4	14.3	1.0	4.5	2.3

1. Based on reports of 45 hospitals to the National Research Council Associate Committee on Control of Hospital Infections.  
2. Includes only infections which occurred after the patients were admitted.

Prepared by the Epidemiology Division, Department of National Health and Welfare, Ottawa, for the National Research Council Associate Committee on Control of Hospital Infections.

TABLE IV.—STAPHYLOCOCCAL INFECTIONS IN HOSPITALS ACQUIRED BEFORE ADMISSION. A SUMMARY OF COMPLETED REPORTS TO THE NATIONAL RESEARCH COUNCIL ASSOCIATE COMMITTEE ON THE CONTROL OF HOSPITAL INFECTIONS FROM 45 HOSPITALS FOR THE SIX-MONTH PERIOD OCTOBER 1, 1958, TO MARCH 31, 1959.

Hospital code number	Surgery			Medicine		
	Total admissions (6 months)	Active infections*		Total admissions (6 months)	Active infections*	
		Number	Rate per 1000 admissions		Number	Rate per 1000 admissions
2	2074	31	14.9	1216	36	29.6
3	835	41	49.1	819	19	23.2
5	5067	264	52.1	1948	76	39.0
7	754	—	—	454	—	—
8	860	7	8.1	635	2	3.1
9	982	2	2.0	837	12	14.3
12	60	4	66.7	90	3	33.3
13	4529	99	21.9	2433	88	36.2
16	204	8	39.2	144	3	20.8
17	4126	93	22.5	2392	40	16.7
19	173	10	57.8	212	2	9.4
20	214	2	9.3	124	—	—
27	683	21	30.7	295	4	13.6
28	1368	13	9.5	1211	15	12.4
30	1539	31	20.1	1511	24	15.9
31	147	5	34.0	155	9	58.1
34	318	9	28.3	171	4	23.4
35	191	2	10.5	294	12	40.8
36	3753	75	20.0	1011	16	15.8
37	886	1	1.1	925	11	11.9
38	283	9	31.8	446	22	49.3
39	363	1	2.7	174	3	17.2
41	1243	6	4.8	363	6	16.5
43	908	6	6.6	1202	27	22.5
46	2523	39	15.5	1484	40	27.0
48	811	9	11.1	568	6	10.6
52	1095	38	34.7	1116	8	7.2
53	3145	18	5.7	1521	69	45.4
56A	1897	55	29.0	4527	163	36.0
58	85	1	11.8	110	1	9.1
63	29	1	34.5	211	24	113.7
64	175	3	17.1	304	7	23.0
65	—	—	—	189	5	26.4
69	846	45	53.2	1390	16	11.5
70	719	28	38.9	1312	15	11.4
72	1648	55	33.4	1834	63	34.3
73	2014	73	36.2	2659	34	12.8
74	759	20	26.2	1163	8	6.9
75	1099	39	35.5	1567	45	28.7
77	1359	46	33.8	1842	3	1.6
81	406	4	9.8	821	25	30.4
85	269	7	26.0	408	15	36.8
86	1323	9	6.8	975	11	11.3
87	2788	28	10.0	853	4	4.7
88	518	6	11.6	613	23	37.5
Total	55,068	1264	22.9	44,529	1019	22.9

\*Infected before admission, including "confirmed" and "not confirmed" cases.

Prepared by the Epidemiology Division, Department of National Health and Welfare, Ottawa, for the National Research Council Associate Committee on Control of Hospital Infections.

5. Out of 44,259 medical admissions, active cases of staphylococcal infection were contracted in hospital in 373, while 1019 were admitted with active staphylococcal infections.

6. There does not appear to be any relationship between the volume of infection acquired outside and that within the hospital.

#### MEMBERSHIP

The following are the members of the National Research Council Associate Committee on Control of Hospital Infections:

Dr. E. G. D. Murray, Chairman, 126 Regent Street, London, Ontario.

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Miss Edith Young, R.N., Director of Nursing, Ottawa Civic Hospital, Ottawa, Ontario.

#### RÉSUMÉ

L'intérêt suscité depuis quelques années par les infections à staphylocoques dans les hôpitaux a donné lieu à l'enquête dont l'auteur présente aujourd'hui les conclusions. Ce travail est fondé sur les faits recueillis entre le 1<sup>er</sup> octobre 1958 et les 31 mars, 1959, dans 45 hôpitaux qui ont soumis un rapport complet au comité chargé de cette question. Feront uniquement l'objet de ce travail les malades qui ont contracté leur infection à l'hôpital. L'analyse des données montre qu'il y a un écart considérable dans les taux d'infection des différents hôpitaux. Ces taux n'étaient pas en rapport du nombre des admissions. Le taux moyen d'infection fut relativement bas, comparé à ceux qu'on avait déjà rapporté antérieurement. De 55,068 admissions en chirurgie, 1264 malades étaient porteurs d'infections dès l'entrée alors que 790 acquièrent une forme quelconque d'infection à staphylocoque au cours de leur séjour à l'hôpital. Du côté médical, les 44,259 admissions comprennent 1019 cas infectés dès l'entrée et 373 infections acquises ultérieurement. On ne peut établir de relation entre le volume des infections contractées à l'extérieur et celui, à l'intérieur de l'hôpital.

#### REVERSAL OF ANTIBIOTIC RESISTANCE

The incidence and drug resistance of all staphylococcal infections in the surgical wards of a large general hospital were studied by Barber *et al.* (*Brit. M. J.*, 1: 11, 1960) over the period October 1, 1957, to June 30, 1959. In the six months before the investigation a number of measures against cross-infection were introduced into the hospital, involving isolation, laundry procedures, hospital sterilization, ward and theatre hygiene, and ward closure. In April 1958, a controlled antibiotic policy was put into operation and consisted of restriction in the use of all antibiotics for prophylactic purposes, strict limitation of the use of penicillin, and the general employment of double chemotherapy, each drug being given in full dosage. The use of penicillin was confined to two medical and two surgical wards, and the nursing staff of these wards were supplied with cartridge syringes and taught to give injections of penicillin without spraying penicillin into the atmosphere.

During the investigation, 5239 patients were admitted to the wards studied and 452 had a staphylococcal infection. The results were that at the beginning of the investigation 70% of the infections were resistant to penicillin and tetracycline and only 12% were sensitive to penicillin, and that at the end of the investigation 36% of the infections were resistant to penicillin and tetracycline and 48% were sensitive to penicillin. Analysis of the strains of *Staph. pyogenes* (on the basis of phage type) showed a similar trend towards penicillin sensitivity. Although few precise conclusions can be drawn from this experiment, the fact that the ever-increasing incidence of drug-resistant staphylococcal infection in hospitals can be checked, is encouraging.

## A MORBIDITY STUDY ON A WORKING POPULATION\*

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THE EARLIEST surveys undertaken to evaluate community health were almost exclusively in the nature of mortality statistics. In more recent years, a great deal of thought and study has gone into obtaining morbidity or sickness statistics in an effort to reveal the health level of the population more precisely.

In industry, through the medium of periodic health examinations, another area is currently being explored. It gives promise of providing statistics on the incidence among employees of chronic illness and disability that cause little or no lost time from work.

On the formation of a medical department in our company (Imperial Oil Limited) twelve years ago, a medical policy was established. In order that it might be applied uniformly and equitably to all employees and all operations throughout the company, considerable planning was required.

### FACTORS IN PLANNING A MEDICAL POLICY

Three factors that greatly influenced the planning were: Firstly, the size of Canada, almost 4000 miles from east to west, and close to 3000 miles from north to south. The country is sparsely populated by 17,340,000 people, 90% of whom live within 200 miles of the southern international border between Canada and the United States of America. Secondly, the extreme variations in climate depending on the location and the season of year. Thirdly, the nature of the company operations. As an integrated oil company, we are active in every phase of the petroleum industry, including exploration, production, manufacturing, marketing, transportation and research.

The backbone of the medical program is an initial preplacement examination before an applicant is employed, and the subsequent periodic health examinations available to persons with employee status. Where employees are concentrated, health centres are located to provide emergency care for injuries and illnesses, the employee being referred to the family physician for subsequent care.

Medical guidance and health counselling by well-qualified physicians and nurses are available to employees. Confidential medical records are kept within the medical department. Data obtained from the medical records are the source of the medical statistics.

In order to be able to advise top management on the health of the employees, a search was made for some reliable method of assessing employee health individually and collectively.

Initially it was decided that four main groups of facts would be collected and analyzed statistically:

1. Employee absenteeism due to sickness and accident,
2. Medical examinations performed on applicants and employees,
3. Employee visits to health centres, and
4. Deaths among employees.

In this paper, we will consider only the first two items, that is, sickness absenteeism and the medical examinations.

Since the objective in recording sickness absence is to have as accurate a record as possible, all absences due to sickness or accidents, industrial or non-industrial, of one day's duration or more are recorded. The details of recording are intentionally omitted.

During the year 1957, when the company population was 14,773, there were 18,737 reported cases of absenteeism due to sickness which included injuries and there was a total of 126,895 calendar days lost from work.

### DEFINITIONS AND SOME RESULTS

The sickness absence rates were as follows:

$$\text{Frequency rate} = \frac{\text{Number of absences}}{\text{Average population}} \times 1000.$$

This gives the average number of absences per 1000 employees per year, which was 1268.3 in 1957.

$$\text{Disability rate} = \frac{\text{Calendar days lost}}{\text{Average population}}$$

This is the average number of calendar days lost per employee per year; 8.6 days in 1957.

$$\text{Severity rate} = \frac{\text{Calendar days lost}}{\text{Number of absences}}$$

This gives the average number of calendar days of disability per absence; 6.8 days in 1957.

$$\text{Non-effective rate} = \frac{\text{Calendar days lost}}{\text{Average population}} \times \frac{1000}{365}$$

This is the average number of employees absent per day due to sickness or accident per 1000 employees; 23.5 employees in 1957.

The non-effective rate is probably the one that is most readily understood and appreciated by management. In this particular instance, management would need to make provision for 23 or 24 additional qualified or trained employees daily on any work requiring a full complement of 1000 employees constantly on the job. This means that double salaries or wages are paid, one for the sick man and one for his trained replacement.

In some companies, it is the practice to exclude from the sickness absence rates one or more of the following: absences of seven days or less, absences not medically certified, and prolonged absences beyond those of regular benefit provisions. If all these exclusions were entered into the calculation

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of the non-effective rate previously mentioned for 1957, the figure of 23.5 would be reduced by over one-third to 14.4 employees.

This example illustrates clearly the importance of understanding what is included under the heading of "sickness absenteeism" when making a medical-statistical study. This is particularly pertinent if the statistics are being compared with those of another company or industry.

It is significant that 38.6% of the population lost no time. The 53.0% of the population that was absent one, two or three times during the year, accounted for 80.7% of calendar days lost. This group of employees is one that appears well-motivated and willing to co-operate in a constructive health program designed to maintain and improve their health and efficiency.

Then there is a small group of 8.4% of the company population absent four or more times (four to 19 times) that were responsible for 19.3% of calendar days lost. It is in this group that team work is necessary in investigation and assessment and for formulation of corrective action.

#### INCIDENCE OF DERMATITIS

In the literature, reference is frequently made to the high incidence of dermatitis in oil workers. Schwartz, in an article on "Prevention of occupational skin diseases" (1955), classifies the actual causes of occupational dermatoses in 41,628 workers. He reports the highest incidence (18.8%) in those people working with petroleum products and greases.

As we have not felt that there was a particular problem with dermatitis in the petroleum industry where there was careful housekeeping in the plants and the employees practised good personal hygiene, we sought confirmation of our impression.

#### SICKNESS ABSENTEEISM—1957

Occupational dermatitis					
Total	Male refinery employees (4718)		All other employees (10,055)		
No. of cases	No. of cases	Days	No. of cases	Days	
1	19	—	—	1	19
Non-occupational dermatitis					
Total	Male refinery employees		All other employees		
No. of cases	No. of cases	Days	No. of cases	Days	
16	366	7	186	9	180

This shows that one case of occupational dermatitis occurring in a control group lost 19 days from work, and that there were no cases among the male refinery workers.

There were 16 cases of non-occupational dermatitis: a total of 366 days lost from work. They were about evenly divided between the refinery workers and the control group, and each group lost about the same total time from work.

Further confirmation was obtained on a review of the periodic health examinations of the two groups. Dermatitis was recorded in 3.1% of male refinery employees examined (2611), and in 3.0% of all other employees (7267).

If there had been any significant amount of occupational dermatitis due to contact with petroleum products and greases, we would have expected a higher incidence in the male refinery workers. Our study has shown that the incidence of dermatitis is essentially the same in the two groups studied, and is similar to that in the general population.

#### WHAT IS A HEALTHY EMPLOYEE?

During the last four years we have been seeking a method for assessing in industrial workers the amount of ill health which does not cause them to lose appreciable time from work. It is our view that the usual practice of using morbidity statistics to inform management of the amount of existing sickness absences may unwittingly allow them to believe that those not having absences as sick cases are perfectly healthy.

The definition of health of the World Health Organization—"A state of complete physical, mental and social well-being and the absence of disease or infirmity"—is well known to all of us. Is such a definition applicable to the industrial worker? In other words, what do we mean when we say an employee is healthy?

#### Method

We decided that it would be worth while to analyse periodic health examinations including pre-placement examinations for a period of one year, to determine the apparent health status of a working population.

The fact that the employees of our company are widely dispersed across the country allows a representative cross-section of the working age group of the nation to be studied. The medical examiners are full-time or part-time physicians who either are qualified as specialists in internal medicine or were selected on account of their experience in general medicine. The same standards are applied in selecting company medical examiners for examinations on a fee basis.

Data relating to the employee's identity and any conditions found on examination are transferred to an International Business Machines card which we call the Physicians' Examination Summary card.

This card has 24 sections. The first 10 serve to identify the employee, the next six indicate the reason for the examination and give the results, and the remaining eight sections are concerned with the specific diagnosis.

#### Results

During the year 1957, 9878 periodic and pre-placement examinations were completed, and 24,

SUMMARY OF CONDITIONS  
MEDICAL EXAMINATIONS—1957

Number of examinations.....	9878
Total conditions found.....	24,444
(1) New conditions.....	12%
(2) Conditions recorded previously.....	88%
(a) Improved, corrected, or controlled.....	33%
(b) Unchanged.....	49.5%
(c) Deteriorated or relapsed.....	5.5%

444 conditions or diseases noted—an average of 2.4 conditions per person examined.

Twelve per cent of the conditions were newly discovered—that is, they were unknown to the employee before the examination. The remaining 88% of conditions were known to the employee and had in most cases been previously recorded. Included in this group were conditions that had been improved, corrected or controlled since a previous examination: 33% of the total. Conditions that showed no change accounted for 49.5% of the total, and conditions that showed definite deterioration or relapse made up 5.5% of the total conditions.

It was interesting to note that no appreciable disease or abnormal condition was found in 15.6% of those examined.

*Incidence of Disease*

In reviewing the conditions or diseases most frequently encountered, some idea of the number of new conditions discovered and the status of those previously recorded, as well as the age distribution, was obtained.

Malignant neoplasms were found in 0.6% of employees examined. Of the 59 cases recorded, six were newly discovered and 53 had been previously diagnosed. Of this latter group 36 had improved or were controlled, 15 had not changed and two had deteriorated. Increasing prevalence with age was noted.

Diabetes mellitus was found in 0.8% of employees examined. Nineteen of the 78 recorded cases were newly discovered. Of the balance of 59 previously diagnosed cases, 43 were controlled or improved, 11 had not changed in status and five had deteriorated or relapsed. Increasing prevalence with age was noted, the most marked increase being in the groups between the 3rd and 4th decade.

Gout was recorded in only 0.36% of employees examined. Of the 36 cases on record for the year, three were newly diagnosed and 33 were previously known. Of the latter group, 24 showed improvement, seven were unchanged and two had deteriorated. The greatest prevalence was in the 50-59 year age-group.

Arteriosclerotic heart disease, including coronary artery disease, was found in 2.16% of employees examined. Of the 213 cases recorded, 16 were newly discovered and 197 had been previously diagnosed. Of the latter group, 116 were controlled

or improved, 77 had not changed in status and four had signs of deterioration.

No diagnosis was made before the 30-39 year age-group, where a few cases were noted. Thereafter, prevalence increased with age.

Hypertensive disease was recorded in 8.2% of employees examined. Of the 808 cases recorded, 205 were newly diagnosed and 603 had been previously diagnosed. Of this latter group, 119 were controlled or improved, 426 had not changed and 58 had deteriorated.

Cases were recorded in all age groups; prevalence increased markedly with age.

Ulcers of the stomach and duodenum were recorded in 3.15% of employees examined. Of the 311 cases recorded, 13 were diagnosed for the first time. Of the 298 remaining cases, 251 were controlled or showed improvement, 38 were unchanged in status and nine had suffered a relapse or had deteriorated. Again, prevalence was increased with age but there was a slight decline in the 50-59 year age-group.

Hernias were recorded in 2.8% of examinations. Of the 275 cases recorded, 46 were new diagnoses. Of the balance of 229, 97 were corrected, 120 were unchanged in status and 12 had deteriorated. The rate of prevalence was constant in the two early age groups, increasing considerably thereafter.

Rheumatoid arthritis was noted in only 0.3% of employees examined. No new cases were recorded. Of the 30 cases, 17 improved, 10 were unchanged in status and three showed deterioration. Again, prevalence increased with age.

The number of examinations that has been reviewed in this study is too small to allow us to come to any statistical conclusion. It merely serves to point out that health assessments have some value in bringing to light abnormal conditions or diseases that the employee did not know existed. In addition, light is thrown on the course of abnormal conditions or diseases that employees have been subject to while continuing at work. In many instances, the condition showed improvement (resulting from correction or control) or arrest as a direct result of the medical counsel and guidance received during a health examination.

In view of what had been learned from the data on chronic illness and disability obtained in 1957, it was decided in 1958 to find out how many employees had limited work capacity. Each health centre reported monthly the current number falling into the four groups. For 1958, the totals were as follows:

EMPLOYEES WITH LIMITED WORK CAPACITY	
Company population (1958).....	14,051
Assigned to limited duties.....	360
Decreased reserve.....	267
(fit for usual duties)	
Class "C".....	618
Class "D".....	621

1866 or 13.2% of the company population.

In a company population of 14,051 there were 360 assigned to limited duties, that is, their jobs had to be changed either to lighter work or less exacting work. There were 267 with decreased reserve: they were fit for their usual duties, but could not take on more strenuous work or greater responsibility. Group "C" included 618. They had disabilities that were unlikely to change, such as loss of an arm, loss of an eye, or colour vision defect. There were 621 in Group "D", with conditions that were arrested but might become activated or progress, such as tuberculosis, rheumatic heart disease with mitral stenosis, and hernia.

It was interesting to observe that 1866 or 13.2% of the company population could be considered as employees with limited work capacity. They were experienced employees that were able to do productive work when placed at suitable jobs within their physical and mental capabilities.

#### SUMMARY

The sickness absentee rates for one year have been presented of a company population widely dispersed in Canada and engaged in all phases of the oil industry. The incidence of occupational and non-occupational dermatitis in refinery workers and a control group is compared. No increased incidence of occupational dermatitis in employees working with petroleum products and greases was found. Periodic health examinations and pre-placement examinations were reviewed. Under selected diseases, the frequency of each was shown, and the diseases were subdivided into those not known to the employee before examination and those that had been previously recorded. The latter reflected to a certain degree the effect that health counselling and medical guidance had by influencing employees to seek treatment earlier than they might otherwise have done.

A review of employees with limited work capacity who are able to do an effective job when suitably placed was made.

Every effort has been made to keep the amount of sickness absence of employees to a minimum, by supporting an active health program. Employees with chronic illness or disability and the will to do productive work may have little or no loss of time from work when placed at jobs within their capabilities. Earlier the question was posed, "What is employee health?" The present study strengthens the view that an appropriate definition for employee health is: "The state of well-being that exists when an employee is able and willing to fulfil regularly the requirements of his job."

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#### RÉSUMÉ

L'établissement d'un service médical du travail à la compagnie Imperial Oil a été influencé par l'étendue du pays, les variations climatiques et le genre d'exploitation de la compagnie qui englobe toutes les phases de l'industrie du pétrole. Ce service repose sur un examen préparatoire à la demande d'emploi, suivi d'examens périodiques au cours de la carrière de l'employé s'il est accepté. S'il en fait la demande, on lui offre aussi des conseils sur sa santé. Les dossiers, auxquels n'ont accès que les personnes autorisées, sont conservés au département médical. Afin de tenir la

direction au courant de la santé du personnel, on a cru bon de noter l'absentéisme causé par la maladie ou les accidents, les examens médicaux pratiqués chez les postulants et les employés, le nombre de consultations aux centres de santé et le taux de mortalité. Le présent travail ne porte que sur les deux premiers items.

On tient compte de toutes les absences d'un jour ou plus causées par la maladie et les accidents, industriels ou non-industriels. Au cours de l'année 1957 le personnel de la compagnie se chiffrait à 14,773 et l'on rapporta 18,737 cas d'absentéisme représentant une perte totale de 126,895 jours. Le taux d'absence par mille employés se chiffra à 1268.3 et le taux d'invalidité à 8.6 jours par employé par année. La durée des absences fut en moyenne 6.8 jours. La direction se fie surtout au taux de non-efficacité qui s'établit à 23.4 employés absents par jour par mille employés. Il importe de noter ici qu'un groupe de 38.6% n'a pas perdu une journée de travail au cours de l'année et que les 53% de cette population qui furent absents une, deux ou trois fois pendant l'année sont responsables de 80.7% des journées de travail perdues. Le service médical de la compagnie doit donc s'occuper particulièrement de ceux-ci.

On associe fréquemment le pétrole aux dermatoses industrielles, mais une enquête a montré que la fréquence des affections de la peau chez les employés du pétrole est à peu près la même que celle d'un groupe témoin de travailleurs qui n'entrent pas en contact avec ces produits, et que le taux chez ces deux groupes est essentiellement le même que celui des dermatoses dans la population en général. L'analyse des dossiers a montré qu'en 1957, 12% des maladies signalées au cours des examens représentaient des entités morbides dont l'employé ne soupçonnait pas la présence et qui n'avaient jamais été diagnostiquées chez lui auparavant. Le service de santé d'une grande industrie cherche à conserver le taux d'absentéisme causé par la maladie ou les accidents au minimum. Les employés atteints de maladies ou d'infirmités chroniques mais qui ont la force de volonté d'accomplir un travail productif peuvent faire preuve d'une assiduité remarquable lorsqu'ils sont occupés à des travaux qui leur conviennent.

#### THE REPETITIVE WRITER IN RATTIONALIA

"Take down a volume," urged Dr. Whisk. "Glance through it. The old style has a certain nostalgic charm."

Stifling his loathing, Gulliver opened the first book on which his hand came, not to rest, but to quiver. An introductory paragraph looked as familiar as a scuffed doormat:

As early as 1873, it was noted that the bacterium *Styphureomalcides botuparagraphylii* was to be found in

.....  
However, it was not until 1911 that Murchison discovered

.....  
Our interest in this field was aroused when we observed by chance that

.....  
Gulliver slammed the book shut. "You can't do this to me!" His scream rasped through the catacombs.

Dr. Whisk's teeth gleamed in the hideous light. "No cause for alarm," he assured Gulliver silkily. "You're not guilty, I'm sure, of such a crime as this?" — R. Straus: *Lancet*, 2: 1183, 1959.

## CEREBRAL PALSY IN MANITOBA\*

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### INTRODUCTION

THE DATA for this paper were obtained between 1950 and 1956 from an analysis of the case records of 370 children with cerebral palsy. Only those under the age of 18 years when first seen were included, and the majority were examined personally. Three hundred and twenty-one cases were from clinics held under the auspices of the Society for Crippled Children and Adults of Manitoba. These clinics, begun in 1950, were held at the Children's Hospital, Winnipeg, and in 10 provincial health units in rural Manitoba. Their existence was made widely known to the medical profession, all health services and the public. The records were used of 49 patients seen either in private practice or during the 1949 survey of crippled children by the Provincial Department of Health.

### AGE, SEX AND RESIDENCE

TABLE I.—AGE, SEX AND RESIDENCE

Age when first referred for treatment (370 cases)	
0 - 2 years	73
3 - 5 "	115
6 - 10 "	121
11 - 17 "	61
Sex:	
Male	207
Female	163
Residence:	
Greater Winnipeg	160
Rural Manitoba	210

The age, sex and residence of the patients at the time of their first referral are given in Table I. The reason for the large numbers of children over the age of six years when first referred was the lack of treatment facilities before 1950. There was a preponderance of male children. The distribution of cases between Greater Winnipeg and rural Manitoba was proportionate to the population of these areas. The Dominion statistics for 1951 gave the population of Greater Winnipeg as 354,069 and the total population of Manitoba as 776,541. The figures for 1956 were 409,121 and 850,040 respectively.

### INCIDENCE

The incidence of congenital and acquired cerebral palsy is set out (Table II) for each five-year age-group from 0 to 14 years. (The sources of the 370 cases of cerebral palsy are given in the introduction.) Additional cases were sought from four large hospitals in Winnipeg by reviewing their admission records for the past 10 years, and also from enquiry at the Provincial Residential

TABLE II.—INCIDENCE BY YEAR OF BIRTH

Year of birth	No. of cases by year of birth	Total in 5-year age-groups	Population by 5-year age-groups (1956 census)	Incidence per 1000 all types
	Congenital	Acquired		
1942	13			
1943	22			
1944	15	91	72,516	1.323
1945	26	5		
1946	20			
1947	21			
1948	41			
1949	31	120	91,460	1.574
1950	22	24		
1951	29			
1952	27			
1953	18			
1954	12	59	100,367	0.627
1955	4	3		
1956	1			

Centre for defective children. Only three cases not already known were found. There must have been a number of mild cases requiring no treatment, attending doctors privately, which would have raised the total incidence. The low incidence in the 0-4 year age-group reflected a lack of recognition of the condition in this age period. The most significant figure was probably that for the 5-9 year age-group with an incidence of 1.574 per 1000.

British and Scandinavian surveys give estimates of the incidence of cerebral palsy in children of school age varying between 1.5 and 2.5 per 1000. Ingram<sup>8</sup> (1955) quotes 2 to 2.5 cases per 1000 of the school population as a fair estimate for urban areas. In the United States, figures quoted are often four or five times higher than this. Unfortunately, such figures are often expressed per 100,000 population. This is an inaccurate calculation as it is usually based on the highest incidence of a 3 to 5 year age-group, which is then related to the population as a whole, assuming the life expectancy for a person with cerebral palsy to be the same as for a normal person. Herlitz and Redim<sup>7</sup> rightly recommended that for accurate comparison the rates should be expressed as the number per 1000 of a given age group, or as the number of survivors per 1000 live births. On this basis, Latham, Anderson and Eastman<sup>10</sup> in the U.S.A. quote 2.9 survivors per 1000 live births.

### DIAGNOSIS

TABLE III.—DIAGNOSTIC GROUPING

	No. of cases	%
Spastic	272	73.6
Dyskinetic	66	17.8
Mixed	19	5.1
Ataxic	13	3.5
Total	370	100.0

The 370 cases were divided into four main groups (Table III). The term dyskinesia was used to include those with predominantly athetoid or choreiform movements but included four cases of congenital tremor. It was not used for spastic children with some superimposed involuntary

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movements. The mixed group did not fit easily into any single classification and exhibited signs of pyramidal and basal ganglia lesions. They were all quadriplegic and the majority of them had a severe physical handicap. No cases of ataxic diplegia were recognized.

In other series the spastic group constitutes 60 to 80% of the total, though the figure may be as low as 40% in institutional cases. The majority quote about 70%. The percentage of athetoids ranges from 20 to 40% and of ataxics from 3 to 10%.

TABLE IV.—SPASTICS ACCORDING TO TYPE AND DISTRIBUTION OF LESION

	No. of cases	% of total series
Spastic quadriplegia (asymmetrical)...	39	10.5%
Bilateral hemiplegia.....	10	2.7%
Triplegia.....	11	2.9%
Right hemiplegia.....	78	21.0%
Left hemiplegia.....	59	15.9%
Right monoplegia.....	8	2.1%
Left monoplegia.....	11	2.9%
Diplegia (symmetrical).....	32	8.6%
Paraplegia (symmetrical).....	24	6.5%
Total.....	272	73.6%

Only the spastic group was further subdivided according to the limbs involved (Table IV). The other groups were all quadriplegics. The fact that hemiplegia is the only diagnosis which consistently agrees in the majority of surveys shows how difficult comparisons can be. Differences in terminology are apparent, and variations in diagnosis of patients with dystonia, athetosis and rigidity, or a mixture of these, are obvious. The classification suggested by Balf and Ingram<sup>2</sup> would seem a very logical one, although it has not been adopted here in its entirety. It is also agreed that cases they describe as diplegia may go through the stages of hypotonia, dystonia and rigidity before becoming spastic, or they may stop at any one of these stages. However, the term diplegia has been retained in this paper as a distinct entity. As used here, it refers to a symmetrical spastic lesion in which mainly the legs are affected and the arms show minimal signs. The reason for using "diplegia", so defined, is the belief that it contains a distinct etiological group. The distinction between diplegia and paraplegia is often more difficult to make. Childs and Evans<sup>4</sup> have produced some evidence that the two may differ in their etiology. In the diagnostic tables the two terms have been used, but this has not been pursued further. Double hemiplegia as a diagnosis has been retained because some authors feel that it, again, has an etiological significance. At least it has the merit of being sufficiently distinctive to make the diagnosis open to little misinterpretation.

### Etiology

Many publications have attempted to throw light on the etiology of cerebral palsy (Perlstein<sup>12</sup>; Childs and Evans<sup>4</sup>; Brandt and Westergaard-Nielsen<sup>3</sup>; Eastman<sup>5</sup>; Asher and Schonell<sup>1</sup>; and others). These are based on retrospective studies in known cases of cerebral palsy. An attempt has been made in some of these publications to associate the past history of the patient with a specific type of lesion. Perlstein<sup>12</sup> used the term "clinical correlates" for such associations, and in the present state of our knowledge it would be unwise to make further assumptions regarding cause and effect. To obtain material of etiological validity, forward studies on all livebirths and stillbirths are necessary. The only proper use to be made of retrospective studies is to determine the needs for service (McKeown<sup>11</sup>). Nevertheless, some useful etiological concepts may be postulated from existing data, until the results of prospective surveys are available.

In Table V, the 370 cases are tabulated according to their past history. Each case was assigned to a single factor which was potentially etiological, but, in fact, in a number of cases more than one factor existed. Where details of the pregnancy and delivery were lacking, the term "no record" was used. Cases in which no abnormal factors presented in the history were placed in the unknown group. The histories were obtained from the mother. In most instances hospital records were not available, but when used they gave disappointingly little additional information.

### Prematurity

A history of prematurity (birth weight under 5½ lb.) was present in 27% (Table V). On analysis of these 100 premature births according to the neurological lesion, 32 (57.1%) had a symmetrical spastic lesion.

For statistical analysis the categories used were spastic quadriplegia (15 cases), spastic hemiplegia (23 cases), spastic monoplegia (six cases), symmetrical spastics (32 cases), dyskinesia (14 cases), and "other" (10 cases). It was necessary to group bilateral hemiplegia, triplegia, the mixed group and ataxia as "other" in order to fulfil the requirement for statistical analysis by the  $\chi^2$  test, that the "expected" number in each category be not less than five. "Expected" values were obtained using the figures for the total group, less the number recorded as "no record" or "unknown", e.g. 39 of the 370 cases were spastic quadriplegics, but omission of the "no record" and "unknown" etiological groups reduced these figures to 27 and 284 respectively. Therefore, the "expected" number among the 100 prematures was  $27 \times 100 = 9.5$ .

284

When observed and expected numbers of prematures in each etiological group were compared by the  $\chi^2$  test, a highly significant deviation from

TABLE V.—FREQUENCY OF POTENTIALLY ETIOLOGICAL FACTORS IN THE TOTAL GROUP AND IN THE VARIOUS CLINICAL TYPES, WITH THE PERCENTAGE OF EACH TYPE

Potentially etiological factor	All types		Spastic quadriplegia		Bilateral hemiplegia		Spastic triplegia		Spastic hemiplegia		Spastic monoplegia		Symmetric spastic or paraparesis		Mixed		Dyskinesia		Ataxia			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Prematurity.....	100	27.0	15	38.4	1	10	2	18.1	23	16.7	6	31.6	32	57.1	3	15.7	14	21.2	4	30.7		
No record.....	26	7.0	4	10.3					13	9.5	2	10.5	6	10.7			1	1.5				
Unknown.....	60	16.2	8	20.5	2	20	3	27.3	25	18.3	2	10.5	6	10.7	3	15.8	10	15.1	1	7.7		
Acquired.....	54	14.8	3	7.7	3	30	2	18.1	31	22.6	6	31.6	3	5.3	2	10.5	2	3.0	2	15.4		
Anoxia.....	47	12.7	4	10.3					18	13.1	1	5.2	3	5.3	6	31.6	14	21.2	1	7.7		
Trauma.....	33	8.9	3	7.7	2	20	3	27.3	16	11.7	2	10.5	2	3.6	1	5.2	3	4.5	1	7.7		
Rh incompatibility.....	22	5.9														2	10.5	20	30.2			
Breech delivery.....	14	3.8			2	20	1	9.1	5	3.6			1	1.8	2	10.5	2	3.0	1	7.7		
Cæsarean section.....	5	1.3	1	2.5					2	1.4			1	1.8					1	7.7		
Toxaemia.....	5	1.3	1	2.5					4	2.9												
Familial.....	4	1.1											2	3.6					2	15.4		
Total.....	370	100.0	39	99.9	10	100	11	99.9	137	99.8	19	99.9	56	99.9	19	99.8	66	99.7	13	100.0		

expectation was found ( $P < 0.01$ ). This value depended mainly upon the excess of symmetrical spastics found among the prematures. It was concluded that there was a relationship between prematurity and symmetrical spastic diplegia.

The observation that the symmetrical type of cerebral palsy was associated with prematurity was confirmed by comparisons of birth weights. Birth weights were analyzed in symmetrical spastics, asymmetrical spastics, and the combined mixed and athetoid groups, with the following results:

Type	Number	Mean birth weight (lb.)	Standard deviation
Symmetrical spastics..	46	4.54 ± 0.27	1.85
Asymmetrical spastics	137	6.40 ± 0.16	1.84
Mixed and athetoid...	71	6.69 ± 0.20	1.71

The mean birth weight for symmetrical spastics was markedly lower than for the other groups analyzed. The difference between the symmetrical spastics and the other categories was significant (by Fisher's *t*-test); the asymmetrical spastics did not differ significantly from the mixed and athetoid groups.

#### No Record and Unknown

In 86 cases (or 23.2% of the total), no etiological factor was designated.

#### Acquired Lesion

The percentage of cases occurring postnatally (acquired) was 14.8%. Encephalitis (mainly Western equine type) was the responsible agent in 15 cases. Eleven were associated with high fever, seven resulted from head injuries, six from meningitis, two occurred with gastroenteritis, two had tuberculous meningitis, and one each had brain abscess, brain tumour and subdural haematoma. In six there was no record of the cause.

Of the 54 cases in the whole group, 31 suffered a spastic hemiplegia. Statistical analysis by the  $\chi^2$  test was made with the following groupings: spastic hemiplegia (31 cases), other asymmetrical spastics (14 cases), symmetrical spastics and ataxics (five cases), and mixed and dyskinesia (four cases). A significant deviation from expectation was found ( $P < 0.01$ ). This deviation depended mainly upon the increased frequency of spastic hemiplegia in the acquired group. It was concluded that the lesion most likely to be associated with an acquired type of cerebral palsy was spastic hemiplegia.

#### Birth Trauma and Anoxia

Anoxia was considered a factor when there was a history of cyanosis in the first week of life, prolonged labour, fetal distress, other factors suggestive of intrauterine or intrapartum lack of oxygen, or severe maternal bleeding. No attempt was made to subdivide this group into prenatal and paranatal anoxia. Trauma indicates precipitate delivery, difficult instrumental delivery or intracranial haemorrhage, when factors suggestive of anoxia were not present. As most of the information was obtained from the mother, the division into trauma and anoxia may have been somewhat artificial.

In analyzing these two factors by diagnostic groups, different authors have shown that anoxia was more frequently associated with the dyskinetic or extrapyramidal group than with spastics. It was found difficult in many instances, from the histories in this series, to allot a case to anoxia or birth trauma with absolute certainty. Hence, one was hesitant to place too much significance on further analysis by diagnostic groups. Statistical analysis did show a significant excess of dyskinesia and mixed cases among the group with anoxia, and a significant excess of hemiplegics and of other asymmetrical spastics among the group with birth trauma.

*Rhesus Incompatibility and Jaundice*

The term Rh incompatibility was used when the mother was known to be Rh negative, and the child was Rh positive with clinical jaundice. There were 22 cases (5.9%) in which Rh incompatibility was the only etiological factor. A further four cases occurred in the premature group. Two prematures and two mature babies (one anoxic and the other assigned to unknown causes) also had a significant history of jaundice in the neonatal period.

It is well recognized that kernicterus is associated with an extrapyramidal type of lesion, and no statistical analysis was necessary to demonstrate this.

*Breech Delivery*

In 14 of a total of 25 breech deliveries no other etiological factor was found and they have been assigned as such. Of the remaining 11, ten were premature births and one was classified as anoxia.

*Cæsarean Section*

There were seven delivered by Cæsarean section in the series, but one was a premature baby and another had kernicterus, and these have been assigned to these respective headings. The histories in the remaining five provide no other etiological factor. Indeed, in the majority, the reason for this method of delivery was unknown.

*Toxæmia of Pregnancy*

A history of toxæmia of pregnancy was found in 18 cases. Thirteen have been assigned to other etiological groups as follows: four were anoxic, one had kernicterus, one was a breech, one a Cæsarean delivery and six were premature.

*Familial*

The term "familial" was used for those cases in whom more than one child in the family was affected, and in whom other possible etiological factors were lacking. There were four children allotted to this group in whom no other factors were present in the history: two with spastic paraplegia and two with cerebellar ataxia. The two children with familial spastic paraplegia came from a family in whom the father and grandfather were similarly affected. The two with cerebellar ataxia were from a family of three siblings, the two younger being twins. One twin had nystagmus only and was not included in the series.

There were five additional families (10 children) with more than one sibling affected, but these have been assigned to other etiological groups. They included twins with cerebellar ataxia of the same severity, who were born prematurely. In another family the elder child had athetosis and a history of anoxia at birth, the younger had a left hemiplegia after delivery by Cæsarean section.

Two siblings were symmetrical spastic diplegics and both had been born prematurely. In another family one child was born prematurely with a left hemiplegia and a second child was born with a left monoplegia in whom the obstetrical history was lacking. One child had bilateral hemiplegia of unknown etiology, and a sibling with left hemiplegia had been delivered as a breech. In this last family, the abnormal children came second and third in birth rank, the first and fourth siblings being normal children.

There were three other families, each with one child, included under various etiological headings in this series. Two of these had a congenital tremor. One had a history of prolonged labour and maternal rubella at the third month and was said to have an older sibling with a tremor. The other had a maternal aunt with a tremor of unknown etiology. In the third family a child born of a diabetic mother with toxæmia had a right hemiplegia and fits. The next child was mentally defective and blind.

**INCIDENCE OF TWINS**

There were 19 twins amongst the 216 "congenital" cases of cerebral palsy—an incidence of 8.7%, or nearly eight times the normal. Of these 19 pairs, the co-twins were normal in four, while three died at birth and four more in the first two months. Two had cerebral palsy, one was stillborn, and of the remainder there was no record. Both the concordant pairs occurred in the ataxic group.

**ASSOCIATED ANOMALIES**

Associated anomalies were present in 25 cases. The records were not reliable in this respect and there may well have been more. There were nine cases of hydrocephalus and one of an occipital meningocele with hydrocephalus. Two each had congenital dislocation of the hips, congenital heart lesions, microcephaly and absence of the septum pellucidum. There was one each with a congenital deformity of an arm, precocious puberty, congenital absence of the sacrum with microcephaly and congenital anomalies of the kidneys, subdural hygroma, porencephaly, cataract of one eye and Sturge-Weber syndrome.

**OTHER FACTORS**

Figures for sex incidence have been given at the beginning of this paper. The figures for child rank and maternal age have not been statistically analyzed because of lack of proper control data. Such information as existed in the records for maternal health in pregnancy was not considered to be of sufficient accuracy to report.

TABLE VI.—INTELLIGENCE QUOTIENT OF 370 CHILDREN WITH CEREBRAL PALSY

Intelligence quotient	50	50-69	70-89	90-109	110+	Untested	M.D.	Totals
Spastic								
Hemiplegia and monoplegia	13	18	42	45	12	21	5	156
Symmetrical diplegia and paraparesis	9	6	8	15	10	1	7	56
Other types	15	7	6	10	8	4	10	60
Total spastic	37(8)	31(7)	56(16)	70(8)	30(2)	26(5)	22(2)	272
Mixed	5(1)	1	4(1)	5	2	1	1	19
Dyskinetic	14	10	15(1)	12	2	4(1)	9	66
Ataxic	2	1(1)	4	3(1)	2	1	0	13
Totals	58	43	79	90	36	32	32	370
Percentage distribution	15.7	11.6	21.4	24.3	9.7	8.6	8.6	99.9
Percentage distribution	19.0	14.0	25.8	29.4	11.8	—	—	100.0

(Figures in parentheses denote an acquired etiology.)

## INTELLECTUAL IMPAIRMENT

Of the 370 children in this survey, 306 had their intelligence assessed by the Stanford-Binet Revised Edition 1937 Form L in the majority of cases. The Wechsler Intelligence Scale for Children and the Columbia Mental Maturity Scale were also employed. Throughout the six years under review, one psychologist carried out all the tests (Table VI).

TABLE VII.—PERCENTAGE OF EACH TYPE OF CEREBRAL PALSY AT VARIOUS INTELLIGENCE LEVELS (306 CASES)

Intelligence quotient	<70	70-89	90+
Spastic—			
Hemiplegia and monoplegia	23.8	32.3	43.8
Symmetrical diplegia and paraparesis	31.2	16.6	52.1
Other types	47.8	13.0	39.1
Total spastic	30.3	25.0	44.6
Mixed	35.3	23.5	41.1
Dyskinetic	45.3	28.3	26.4
Ataxic	25.0	33.3	41.6
Unaffected children (Asher and Schonell)	3.0	22.0	75.0

In many instances this evaluation was repeated at yearly intervals. There were 33 children in whom formal testing was not done, but who were assumed to be severely backward because of failure to show any benefit from therapy. In Table VI they are labelled "M.D." and it could be assumed that their I.Q. would be below 70.

Surveys conducted by Dunsdon (1952), Holoran (1952), Asher and Schonell (1950), and Ingram (1955) have shown that from 39 to 58.6% of children with cerebral palsy have an I.Q. less than 70. In this series, 33% of the children had

an I.Q. of less than 70, although if those labelled "M.D." were included, it would raise the percentage to 39.5%. For those with an I.Q. of 70-89, the range in this series was 25.8%, as compared to 26.8 to 36.2% in other reported surveys. An I.Q. over 90 in this series occurred in 41.2%, as against approximately 24% quoted by other authors. The higher intelligence quotients quoted in this series can be explained by a recent personal communication (1959) from Manitoba which states that the test results now obtained by other psychologists are lower by about 10 points.

A further breakdown into percentages of the various types of cerebral palsy for an I.Q. of less than 70, between 70 and 89, and over 90 was compiled (Table VII). For comparison, figures have been quoted for unaffected children. It will be noted that the dyskinetic and combined quadriplegic, bilateral hemiplegic and triplegic spastic groups had the highest percentage for an I.Q. below 70; the symmetrical spastic children, the highest percentage in the over 90 group.

## DEGREE OF PHYSICAL DISABILITY

Of the 370 cases, 342 were classified according to the severity of their disability. The classification used for hemiplegia was that suggested by Ingram. Mild cases can use the hand; in moderate cases the hand assists only; and in severe cases there is no useful function. For the remainder, Perlstein's classifications were followed. Mild cases are able to ambulate, use arms and speak well enough to need no special care. In moderate cases the patient is handicapped in locomotion, self-help and com-

TABLE VIII.—THE SEVERITY OF DISABILITY IN 342 CASES

Severity	Mild	Moderate	Severe	Total
Spastic—hemiplegia and monoplegia	90	55	4	149
—symmetrical	25	19	7	51
—others	10	23	16	51
Total spastic	125(22)	97(18)	27(6)	251
Mixed	2	4(1)	11(1)	17
Dyskinesia	17(1)	20	25(1)	62
Ataxia	7	4	1(1)	12
Totals	153	125	64	342
Percentage distribution	44.7	36.5	18.7	99.9

(Figures in parentheses are those of acquired etiology.)

munication; is not completely disabled, but needs some special care. The severe cases are totally incapacitated and either bedridden or in wheel chairs. From Table VIII, it will be seen that the proportion of severe disability was highest in the dyskinetic, mixed and asymmetrical (excluding hemiplegia) spastic forms of cerebral palsy. In the survey of Ingram<sup>8</sup> (1955) 25% of cases were mildly involved, about 37% moderately involved, and 38% severely involved.

#### SERVICES REQUIRED

Some estimate of the facilities needed for treatment can be made on the basis of physical disability alone (Table VIII). Those with a mild lesion (44.7%) require assessment and occasional follow-up. The cases with severe physical disability (18.7%) require a trial of therapy, and a proportion will be found who obtain little benefit. Those who require and will benefit from prolonged therapy are the moderately disabled group (36.5%). From the combined knowledge of the degree of physical disability and the intelligence of the patient (Table IX), a more accurate assess-

TABLE IX.—RELATIONSHIP BETWEEN INTELLIGENCE QUOTIENT AND DEGREE OF SEVERITY IN 286 CASES

Severity	Mild	Moderate	Severe	Total
I.Q. 0-69.....	31	30	28	89
I.Q. 70-89.....	35	34	8	77
I.Q. 90+.....	64	48	8	120

ment of the services required within a Cerebral Palsy Treatment Centre can be made. A division into four groups is suggested (Junior League, Toronto). Group I are those with mild physical disability and normal and subnormal (I.Q. 70-89) intelligence—99 cases (34.6%). These require periodic follow-up, but no active treatment. Group II have moderate disability with normal intelligence—48 cases (16.7%). These require an active cerebral palsy program. Group III consists of those of moderate disability with subnormal intelligence and the severe cases with normal and subnormal intelligence—50 cases (17.7%). Some of these require intensive therapy and others intermittent periods of treatment. Group IV are the retarded children of any degree of disability—89 cases (31%), for whom care should be provided elsewhere.

As regards an estimate of the educational facilities for these children, the figures in Table IX can be subdivided arbitrarily into four groups in a somewhat more complicated fashion. The first group comprises the mild normal, half the mild subnormal and half the moderate normal; these 106 (37%) should be able to attend normal school. Special educational facilities will have to be provided for half the mild subnormal, half the moderate normal, the moderate subnormal and the severe normal; a total of 83 (29%). The mild

retarded (I.Q. less than 70) and half the moderate retarded could attend schools for the retarded; a total of 46 (16%). Institutional or home care will have to be given to half the moderate retarded and the severe subnormal or retarded, which includes 51 (18%).

#### EDUCATION AND FUTURE EMPLOYMENT

Facilities for special education in Manitoba up to 1956 were almost entirely confined to Winnipeg, and even these had not been fully developed. Table X shows the distribution of children in the survey as at September 1956, according to the education they received. Of 370 cases, there were 67 with inadequate records and four who had died. Of the remaining 299 cases, 97 were of pre-

TABLE X.—EDUCATION OF 202 CEREBRAL PALSY CHILDREN

	Normal school	Special school	Home tutor	Home; no schooling	Institution	Total
Spastic.....	92	5	5	33	15	150
Mixed.....	1	—	6	1	—	8
Athetoid.....	20	2	4	5	5	36
Axatice.....	6	—	—	2	—	8
Total.....	119	7	15	41	20	202

school age. This left 202 cases, of whom 119 were attending normal school, though 34 of these were having difficulty with their grades. Twenty-two were receiving home tutorship or attending a special school, and were probably in the same category as the 34 making slow progress in school. The remainder were in an institution, or at home, and not likely to benefit from education. Thus there were 85 of 202 cases, or 42%, able to compete in normal schools with the potentiality of becoming independent citizens. A further 56 cases, 28%, required special facilities, but would probably be able to contribute to their upkeep in the future.

From these figures, it might be surmised that at least 30% of the cases of cerebral palsy in Manitoba were going to be a charge of their parents or the state all their lives. Provision must be made for at least 25% to work in special surroundings, or on home programs, if any measure of independence is to be attained.

#### INCIDENCE OF OTHER DEFECTS

The case records of 327 children with cerebral palsy were analyzed for other defects. It was found that 8.8% had defective vision, 25.4% had a squint, 7.9% were deaf, and 26.6% suffered from convulsions. These percentages were considerably lower than those quoted by other authors. It was felt that even the 327 records used could not be considered sufficiently reliable to attach any significance to the results.

There were 44 children examined specifically by an ophthalmologist. Of these, 18 (40%) had a squint, three were myopic and three had a gaze paralysis. In this group there were 11 athetoids and the rest were spastic.

Electroencephalographic examinations in 38 children revealed that 19 had abnormal records. The abnormalities were found in five hemiplegic, four symmetrical and three other types of spastic children; in two mixed, four dyskinetic and one ataxic. The normal tracings were obtained from one hemiplegic, two symmetrical and four other types of spastic children, and from eight mixed and four dyskinetic children.

This was too small a series from which to draw conclusions, especially as only one record was made on each child. Five of those with abnormal records were epileptic. Those of low I.Q., or with severe physical disability, did not show a preponderance of abnormal electroencephalograms.

#### SUMMARY

A group of 370 children with cerebral palsy seen under the auspices of the Society for Crippled Children and Adults of Manitoba have formed the basis for this study. Differences in terminology made it difficult to form valid comparisons with other studies. Nevertheless, it is hoped that this series will serve in many particulars as a basis for comparison with future publications from other parts of Canada. The estimated incidence was 1.56 cerebral palsy children per 1000 of school age. Of the affected children, some 40% were able to attend normal school and some 30% were in need of special educational facilities. It was estimated that facilities for intensive therapy would be necessary for about 35%, while 35% might require little or no therapy. Fifteen per cent would be better placed in schools for the retarded, and 15% at some time might require institutional care. The most optimistic estimate would not place more than 60% in a category likely to achieve financial independence as adults.

I would like to express my appreciation to the Society for Crippled Children and Adults of Manitoba for the work they have done in cerebral palsy and for making possible this study. To my colleagues who made up the team who looked after these children, I would express my thanks, and in particular to Miss D. Thompson and Mrs. J. Wright who spent so much time summarizing the case records for me. Dr. M. W. Thompson, department of anatomy, University of Alberta, was kind enough to carry out the statistical analyses.

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#### RÉSUMÉ

Les données de cet article sont tirées de l'analyse des dossiers de 370 enfants atteints de paralysie cérébrale. La grande majorité d'entre eux ont été traités à la Société pour les Enfants et les Adultes Infirmes du Manitoba. La plus grande fréquence de la maladie est probablement celle du groupe de 5 à 9 ans; elle se monte à 1.574 par 1000. On doit se rappeler que dans certains pays la fréquence est exprimée par 100,000 de population, d'où les différences dans les chiffres cités. Le groupement diagnostique des cas a montré que 73.6% étaient spastiques et dans ce groupe, les hémiplégies droites formaient la majorité.

Dans la recherche de l'étiologie l'auteur s'est arrêté à un seul facteur bien que dans nombre de cas, plus d'un facteur semble avoir été en cause. La prématurité à la naissance a été l'anomalie la plus souvent trouvée au cours de ces recherches. Parmi les lésions acquises, l'encéphalite (surtout l'encéphalomyélite équine de l'ouest), la fièvre élevée, les traumatismes crâniens et la méningite ont été impliqués dans plusieurs cas. L'anoxie fut considérée comme un facteur si les antécédents, comprenaient à la naissance de la cyanose, un travail prolongé, de la souffrance fœtale ou d'autres causes qui puissent suggérer un manque d'oxygène. Dans 22 cas (5.9%) l'incompatibilité Rh fut le seul facteur étiologique que l'on put isoler. Le terme "familial" fut employé pour caractériser cette affection lorsque plus d'un enfant d'une même famille en était atteint. Cependant dix enfants appartenant à cinq familles furent versés dans d'autres groupes étiologiques pour des raisons que l'auteur donne dans le texte. On comptait 19 paires de jumeaux parmi les 216 cas de paralysie cérébrale dite congénitale. Cette fréquence de 8.7% est presque huit fois celle de la normale. Vingt-cinq cas comportaient des anomalies associées.

Le quotient intellectuel de 33% de ces enfants s'établissait à moins de 70; 25.8% avaient un quotient intellectuel entre 70 et 89 alors que 41.2% se rangeaient au-delà de 90. Environ 40% de ces enfants peuvent fréquenter l'école régulière alors qu'environ 30% ont besoin de facilités éducatives spéciales. En ce qui concerne la thérapie intensive, à peu près 35% en auraient besoin alors qu'une proportion égale requiert des soins minimes ou pourrait même s'en passer. Il semble donc que 15% devraient être envoyés dans des écoles spéciales pour les arriérés et que 15% à un moment quelconque de leur vie devront être placés dans un hospice. Les experts les plus optimistes dans ce domaine croient qu'au plus 60% de ces enfants pourront un jour se suffire à eux-mêmes.

#### KINETOCARDIOGRAPHIC FINDINGS OF MYOCARDIAL INFARCTION

Forty-two patients with clinically proved myocardial infarctions were studied by Suh and Eddleman (*Circulation*, 19: 531, 1959) by a kinetocardiographic technique. Aneurysmal bulges (paradoxical outward motions) were recorded either over the precordium or in the epigastric region of all patients, including those with both posterior and anterior myocardial infarctions. The point of maximum bulge was usually at the V<sub>5</sub> area in anterior myocardial infarctions.

Serial studies of the patients with acute myocardial infarction revealed that the bulge persisted throughout hospital stay in 78% of the patients, including the 10% who had no bulge on first examination but who showed bulges on subsequent records. In only 22% of the patients did the bulge disappear during the period of hospital stay. The abnormal paradoxical pulsations were palpable in 71% of the patients studied.

Autopsy findings from four patients revealed that the abnormal paradoxical pulsation of the chest wall corresponded anatomically rather well to the location of the myocardial infarction and could have occurred either as the result of a definite myocardial aneurysm or of paradoxical pulsations of the myocardium without definite anatomical aneurysm.

## CLINICAL TRIAL OF HIGH DOSAGE VITAMIN E IN HUMAN MUSCULAR DYSTROPHY\*

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### INTRODUCTION

IT HAS LONG been known that about 20 species of laboratory and farm animals, such as cattle and rodents, when maintained on a vitamin E deficient diet, can develop a condition of muscular wasting structurally and biochemically similar to human muscular dystrophy.<sup>1</sup> Further, this condition of muscular wasting can be cured by the administration of vitamin E. Regeneration of affected muscles can be observed after as little as five days of alpha-tocopherol therapy.<sup>2</sup> Blaxter<sup>3</sup> has shown that cattle with muscular dystrophy have a low serum tocopherol level and he also demonstrated that pregnant cows deficient in vitamin E bear young which exhibit muscular dystrophy. This may bear some relationship to the hereditary factor in human muscular dystrophy. Human muscular dystrophy and vitamin E deficiency muscular dystrophy in animals are, however, not strictly comparable conditions. For instance, children with known prolonged tocopherol deficiency show ceroid pigment deposition in smooth muscle but only rarely in striated muscle, and have little histological change in skeletal muscle.<sup>4</sup> To our knowledge, patients with muscular dystrophy do not have ceroid pigment deposits.

It has been shown that vitamin E administration is effective in curing experimental muscular dystrophy in animals when administered orally, but not when administered parenterally. Recently Sternberg and Pascoe-Dawson<sup>5</sup> have demonstrated in rats that after absorption of orally administered C<sup>14</sup>-labelled alpha-tocopherol, the vitamin is secreted into the stomach to be reabsorbed. Oral administration of alpha-tocopherol is therefore the route of choice. The possibility of alpha-tocopherol's acting through formation of a condensation product with inositol in the gastro-intestinal tract was suggested by Milhorat and Bartels,<sup>6</sup> who found that such a condensation product was much more effective than a vitamin E and inositol mixture in lowering the creatinuria of muscular dystrophy patients. Oral tocopherol alone in a dose of one to five grams had the effect of decreasing the creatinuria in only one of 15 patients. This work was followed up by Bicknell,<sup>7</sup> who studied urinary creatine and creatinine levels in six patients with muscular dystrophy who were maintained for ten weeks on a mixture of synthetic and natural vitamin E, inositol and dried stomach extract. No sig-

nificant changes were observed, although the dose of vitamin E used was relatively small. Some vitamin deficiencies may occur when taking a normal diet due to abnormalities of absorption, storage or utilization of the vitamin. This has been demonstrated for vitamin A by Blackfan and Wolbach.<sup>8</sup> It is possible that such a disturbance exists in human muscular dystrophy and administration of massive doses of vitamin E might overcome the deficiency. Minot<sup>9</sup> reported improvement in two out of five patients with muscular dystrophy treated with "large" doses of vitamin E, although the exact dose was not specified. So far no toxic effects after administration of massive doses of vitamin E have been reported in man with daily doses as high as 40,000 mg.<sup>10</sup> However, degenerative changes in liver, myocardium and brain have been observed in guinea pigs fed with 600-1200 mg. vitamin E daily. Reports in the literature of improvement of sporadic cases of muscular dystrophy while under treatment with vitamin E have been recorded, but all the reports we have studied have been poorly controlled and documented. Therefore it seemed that an extended and controlled trial of massive doses of vitamin E in patients with muscular dystrophy would provide valuable information.

### CASE MATERIAL

Thirty-three patients with muscular dystrophy seen at the Hamilton Muscular Dystrophy Clinic were used for the trial. The diagnosis of muscular dystrophy was established clinically by a panel of six doctors, composed of a neurologist, an internist, a paediatrician, a surgeon and two general practitioners. Of the 33 patients, 16 were boys of the pseudohypertrophic childhood type, one was a girl of the childhood type without pseudohypertrophy, and 16 of both sexes were of the facio-scapulo-humeral or limb-girdle types, there being 11 men and five women. The ages of the patients ranged from six to 58 years. All strata of society were represented.

### METHODS

Before the trial was begun, most patients were observed over a period of one to three years. Eight did not receive this period of preliminary observation.

A daily dosage of 2000 international units of alpha-tocopherol succinate was administered orally in capsule form. It was arbitrarily decided to use one-third of the patients as controls. The controls were given placebo capsules that looked and tasted exactly like the vitamin E preparation. The controls were selected arbitrarily by an outside party who also dispensed the appropriate preparation. Before the trial, all the patients were thoroughly examined and a muscle performance chart was made to itemize the power of almost every muscle in the body. The muscle chart was drawn up like the standard polio muscle charts, each muscle being graded in

\*This project was partly supported by a grant from the Muscular Dystrophy Association of Canada.

TABLE I.

No.	Sex	Type	Born	Number of months observed before trial	Clinical change	Change in muscle chart	No. of months of trial	Clinical change	Change in muscle chart	General response to trial	Capsule
1	M.	Pseudo-hypertrophic childhood	1952	0	—	—	12	—	No change	No change	E
2	M.	Pseudo-hypertrophic childhood	1943	31	Slight to moderate deterioration	Slight deterioration	18	No change	No change	No change	E
3	M.	Pseudo-hypertrophic childhood	1952	0	—	—	16	Slight deterioration	Moderate deterioration	Moderate deterioration	E
4	M.	Pseudo-hypertrophic childhood	1947	32	Marked deterioration	—	15	Slight improvement or no change	Slight deterioration	No change	P
5	M.	Pseudo-hypertrophic childhood	1948	32	Marked deterioration. Fractured femur	—	15	Fractured ankle. Moderate deterioration	Very slight deterioration	Moderate deterioration	E
6	M.	Pseudo-hypertrophic childhood	1953	0	—	—	12	Slight improvement	Slight improvement	Slight improvement	E
7	M.	Pseudo-hypertrophic childhood	1943	22	Slight deterioration	Slight deterioration	9	Slight deterioration	No record	Marked deterioration. Died 8 months after last seen	E
8	M.	Pseudo-hypertrophic childhood	1948	0	—	—	13	Moderate deterioration	Moderate deterioration	Moderate deterioration	E
9	M.	Atypical childhood type	1947	14	—	—	16	Slight improvement	Slight improvement	Slight improvement	P
10	M.	Pseudo-hypertrophic childhood	1940	40	Very slight deterioration	Very slight deterioration	33	No change	Very slight deterioration	No change	E
11	M.	Pseudo-hypertrophic childhood	1943	23	—	Slight deterioration	18	No change	Very slight deterioration	No change	P
12	M.	Pseudo-hypertrophic childhood	1946	22	Moderate deterioration	—	14	No change	Slight to moderate deterioration	Slight deterioration	E
13	M.	Pseudo-hypertrophic childhood	1952	0	—	—	19	No change	No change	No change	E
14	F.	Facio-scapulo-humeral	1945	28	Slight deterioration	Slight deterioration	11	No change	No change	No change	P
15	M.	Pseudo-hypertrophic childhood	1944	29	Moderate deterioration	—	19	No change	Very slight deterioration	No change	E
16	F.	Atypical childhood (no pseudo-hypertrophy)	1947	30	No change	Slight deterioration	17	No change	No change	No change	P
17	M.	Pseudo-hypertrophic childhood	1946	17	No change	Slight deterioration	36	No change	Slight deterioration	Slight deterioration	E
18	M.	Facio-scapulo-humeral (with pseudo-hypertrophy)	1914	0	—	—	34	Slight deterioration	Slight deterioration	Slight deterioration	E
19	M.	Facio-scapulo-humeral	1913	14	Slight deterioration	Slight deterioration	35	Slight deterioration	Very slight deterioration (injury to patella—left knee)	Slight deterioration	E
20	F.	Limb girdle	1924	14	No change	No record	32	Slight improvement	No change	Slight improvement	E (Irregular with pills)
21	M.	Facio-scapulo-humeral	1900	12	Slight deterioration	Slight deterioration	31	Slight deterioration	No change	Slight deterioration	E
22	F.	Facio-scapulo-humeral	1938	14	Slight deterioration or no change	—	21	No change	No change	No change	P
23	F.	Facio-scapulo-humeral	1921	14	Slight deterioration	—	19	Slight improvement	Slight improvement	Slight improvement	E
24	M.	Facio-scapulo-humeral	1933	12	No change	—	22 (on and off)	Slight deterioration	No change	Slight deterioration	E
25	M.	Limb girdle	1920	12	Moderate deterioration	(Fracture left tibia)	30 fracture again	Moderate deterioration	Slight deterioration	Moderate deterioration	E

TABLE I.—(Continued)

No.	Sex	Type	Born	Number of months observed before trial	Clinical change	Change in muscle chart	No. of months of trial	Clinical change	Change in muscle chart	General response to trial	Capsule
26	M.	Atypical pseudo-hypertrophic childhood	1929	0	—	—	15	No change	No change	No change	E
27	M.	Limb girdle	1915	17	Slight deterioration	Slight deterioration	24	Moderate deterioration	Moderate deterioration	Moderate deterioration	P
28	M.	Pseudo-hypertrophic childhood	1941	17	Moderate deterioration	—	7	—	—	Died after marked deterioration	P
29	M.	Limb girdle	1935	10	No change	Slight deterioration	17	No change	No change	No change	E
30	F.	Limb girdle	1929	28	Slight deterioration	No change	11	Slight deterioration	No change	Slight deterioration, fatter	P
31	M.	Limb girdle	1915	0	—	—	27	Slight improvement	Slight improvement	Slight improvement	E
32	M.	Facio-scapulo-humeral	1915	20	Slight deterioration	Slight deterioration	13	No change	No change	No change	P
33	M.	Facio-scapulo-humeral	1906	11	—	No change	28	Slight deterioration	Slight deterioration	Slight deterioration	P (Irregular with pills)

one of six grades. This muscle charting was done throughout by the same physiotherapist, thus ensuring uniformity of grading. We had found that the simpler "Activities of Daily Living" chart was of little value in assessing progress of the disease. At the end of the trial period of 11 months to three years, the patients were reviewed by the clinic and had a complete muscle power reassessment. The doctors examining the patients were not aware of whether the patient was a control or in the trial series.

At the end of the trial the patients were placed in one of the following seven grades according to their response: marked deterioration, moderate deterioration, slight deterioration, no change, slight improvement, moderate improvement, or marked improvement.

In evaluating the results of a given patient, clinical assessment and the recorded changes on the muscle chart were used. Changes in the power of the large antigravity muscles, such as the gluteus maximus and the quadriceps, were given much more emphasis than that of a small muscle or group of muscles, such as the triceps or sternomastoid.

In order to detect any possible toxic effects of such large doses of vitamin E, monthly urine analyses and white blood cell and differential counts were performed on all patients in the trial.

#### RESULTS

Eleven patients (three men, two women, one girl and five boys) had been taking placebo capsules; 22 patients (12 boys, eight men and two women), the vitamin E capsules.

Two of the children with muscular dystrophy died during the trial period, one while taking

vitamin E and one while taking placebo capsules. They were classed as cases of marked deterioration.

Five cases showed slight improvement: three adults receiving vitamin E (one man and two women); one boy, vitamin E; and one boy, the placebo.

	Placebo	Vitamin E
Marked deterioration	1	1
Moderate deterioration	1	4
Slight deterioration	2	6
No change	6	7
Slight improvement	1	4
Moderate improvement	—	—

No obvious signs of toxicity with such large doses of alpha-tocopherol were observed. One patient attributed pruritus ani to his taking the vitamin E and this condition did clear on discontinuing the capsules. One child developed an inability to swallow the capsules or powder for about six months and then resumed the vitamin E. A high percentage of lymphocytes with a normal total white cell count was frequently encountered in both groups. This may be characteristic of muscular dystrophy. In no instance did leukopenia or abnormal urinary findings develop.

The two deaths were due to pneumonia; both patients had marked involvement of the respiratory muscles.

One adult male patient, taking 2000 units of the vitamin E preparation daily for four months, developed a deep leg vein thrombosis which took about one month to clear.

A statistical analysis was carried out in which "no change" and "slight improvement" cases were regarded as showing a positive response to the trial and the remaining cases, a negative response. Such a grouping produced the following table:

	Placebo	Vitamin E	Total
Positive response	7	11	18
Negative response	4	11	15
Total	11	22	33

The Chi-square test for homogeneity gives us

$$\chi^2 = \frac{(7 \times 11 - 4 \times 11 - \frac{1}{2} \times 33)^2 \times 33}{18 \times 11 \times 22 \times 15} = .14$$

Since, for one degree of freedom, the critical  $\chi^2$  value at the 5% level of significance is 3.84, the conclusion is that there is no reason to suppose that vitamin E is any more effective in producing a positive response than a placebo.

#### DISCUSSION

In a slowly progressive, chronic condition such as muscular dystrophy it is very hard to assess the effects of a drug. In children especially, growth and normal increasing activity will often be misleading in assessing progress. In certain cases in which we have performed muscle biopsies no muscle tissue could be demonstrated, all the tissue removed being fibrous or adipose. One could not expect muscles that had become totally replaced by fat and fibrous tissue to be restored to muscle fibres by any treatment. Nevertheless, if some substance could be found that would arrest or retard the progress of the disease, a very major advance would have been accomplished. If the progress of muscular dystrophy could be arrested, then reconstructive surgery would become worth while and physiotherapy mandatory. After several years' observation a patient classified as not having changed while on any *remedial* course could congratulate himself. We were, therefore, not expecting dramatic results. The number of cases included in our trial seems small when reviewed. Our results are sufficiently indecisive that we feel we should not draw dogmatic conclusions.

#### SUMMARY

Thirty-three patients with proved muscular dystrophy were treated either with 2000 international units of alpha-tocopherol succinate daily, administered orally, or with a placebo. One-third of the patients received placebo capsules. Sixteen of them were boys with childhood muscular dystrophy, one was a girl with atypical childhood muscular dystrophy, and 16 were adults of both sexes with the limb girdle or facio-scapulo-humeral form of the disease.

No evidence of toxicity to vitamin E developed at this dosage. The patients were observed for periods of one to three years on the drugs. At the end of the trial the patients were classified according to their response: Patients receiving vitamin E — marked deterioration, one patient; moderate deterioration, four; slight deterioration, six; no change, seven, and slight improvement, four. Patients receiving placebo — marked deterioration, one patient; moderate deterioration, one; slight deterioration, two; no change, six, and slight improvement, one. Statistical analysis, in which "no change" and "slight improvement" were

regarded as positive responses and the remainder as negative responses, shows that there is no reason to suppose that vitamin E is any more effective in producing a positive response than a placebo.

We wish to thank Webber Pharmaceuticals Limited of Toronto, Canada, for their co-operation in these studies and for supplying all the alpha-tocopherol succinate and placebo capsules required. We wish to thank Mrs. Edith Hoerman for her painstaking work of muscle charting, the staff of the Hamilton General Hospital Pharmacy for selecting the controls and dispensing the capsules, Drs. H. P. Andry, E. Birchard, H. Clare, J. Edyt, K. V. Rudnick, L. Szabo and J. M. Woolner for their work on the patients while they were associated with the Hamilton Muscular Dystrophy Clinic, and Mr. J. Binks for collecting blood samples from those patients who were unable to leave home.

We wish to thank J. H. Chung, Ph.D., for his statistical analysis of the results.

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#### RÉSUMÉ

Les auteurs ont entrepris de vérifier et de préciser l'effet déjà rapporté de l'alpha-tocophérol dans les myopathies. Ils administrent par voie orale une dose quotidienne de 2000 U.I. (sous forme de succinate) à 22 malades atteints de dystrophie musculaire établie. Onze autres également atteints de la même affection reçoivent une substance inoffensive sans intérêt thérapeutique et servent de témoins. Le groupe était formé de 16 garçons dont la dystrophie musculaire remontait à l'enfance, une fille souffrant d'une forme atypique des mêmes lésions et 16 adultes des deux sexes atteints de la forme facio-scapulo-humérale de Landouzy et Déjerine ou de la forme distale, c'est-à-dire avec lésions des muscles de la ceinture et de la racine des membres. Cette posologie ne donna lieu à aucune toxicité pendant une période de un à trois ans au cours de laquelle tous ces cas furent observés de près. Dans le groupe ayant reçu de la vitamine E on a observé une détérioration sérieuse dans l'état d'un malade, moyenne chez quatre et légère chez six autres. Quatre accusèrent une légère amélioration et sept ne montrèrent pas de changement. Dans le groupe témoin, les degrés de détérioration s'échelonnèrent comme suit: grave dans un cas, moyenne dans un autre et légère dans deux. Six demeurèrent tels et un fut légèrement amélioré.

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## Case Reports

### ACUTE FULMINATING ECLAMPSIA — MANAGEMENT IN CONJUNCTION WITH PROLONGED EPIDURAL SYMPATHETIC BLOCK

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K. JONES, M.B., B.S.† and

G. M. DOUGLAS-MURRAY, M.D., C.M.,‡  
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THE USE OF conduction blocks in cases of severe pre-eclampsia and eclampsia is not new. The technique of regional block has varied from the use of continuous caudal anaesthesia by Hingson and Edwards<sup>1</sup> in 1943, to continuous spinal anaesthesia,<sup>2</sup> from stellate ganglion with cervical sympathetic nerve block<sup>3</sup> to the more recently used extradural anaesthesia.<sup>4</sup> It is generally agreed that the hypertension of eclampsia can be controlled adequately by continuous spinal sympathetic nerve block. This method of treatment also provides a more alert co-operative patient who has the advantages of freedom from the pain of uterine contractions and a reduction or elimination of further convulsive episodes. Coincidentally there is a reduction in the danger of maternal respiratory morbidity and fetal anoxia from heavy sedation.<sup>4</sup> In addition, the patient can be delivered by either the vaginal or abdominal route, as adequate anaesthesia is available as required. The advantages claimed for continuous conduction blocks in the treatment of anuria or oliguria associated with toxæmia remain in dispute. While many authors<sup>5-8</sup> have demonstrated what was considered a diuresis by this treatment, Turner and Houck<sup>9</sup> feel from their investigations that this aspect has been over-emphasized.

While it is not possible to draw definite conclusions from an isolated case, it is felt worth while to re-emphasize the possibilities available by this technique as a complement to the usual methods of treatment.

Mrs. G.E. a 28-year-old primigravida, was admitted to the Hôtel-Dieu Hospital, Kingston, Ontario, on April 23, 1959. Her presenting complaint was headache of three days' duration, unrelieved by ordinary measures. The date of her last menstrual period was estimated to have been September 15, 1958, and her expected date of delivery to be June 22, 1959.

History revealed slight ankle oedema of eight weeks' duration and recent minimal oedema of the fingers. Three days before admission she developed severe headache which was followed two days later by epi-

gastric pain with nausea and vomiting. She had gained 11 lb. in weight in the previous six weeks.

On admission examination she was undernourished and semi-conscious. Her blood pressure, which had been 90/60 mm. Hg previously, was now 180/100; pulse, 120 and regular. Her liver was palpable 3 cm. below the costal margin and the uterus was consistent with a pregnancy of 26-28 weeks' gestation. The fetal heart was regular at 148 per minute and a small fetus was palpable. There was no significant peripheral oedema and reflexes were moderately hyperactive; no other positive physical findings.

Laboratory investigations: urine S.G. 1.029 and albumin +++, with numerous red blood cells. Serum values were: serum bilirubin 1.7 mg. %; serum fibrinogen 0.3 g. %; CO<sub>2</sub> combining power 18 mEq./l.; serum electrolytes essentially normal.

Three hours after admission the patient suffered a violent convulsion. She received magnesium sulfate 10 g. i.m., then morphine sulfate 10 mg. subcutaneously and was later isolated. After these measures, her blood pressure fell to 120/80 for an hour but subsequently rose to 190/110. A phentolamine (Regitine) test to eliminate the possibility of phaeochromocytoma was performed and proved negative.

An epidural catheter was inserted in the 3rd-4th lumbar interspace under the usual aseptic precautions. Sympathetic block was maintained by intermittent injections of xylocaine 0.6-1% solution. By means of the sympathetic block the patient's blood pressure was maintained below 150/100, strict aseptic technique being observed for each injection. Chloramphenicol (Chloromycetin) 250 mg. four times daily was given prophylactically and her back was examined daily for signs of local infection.

During the next 24 hours the patient's condition showed a dramatic improvement. She had suffered no further convulsions, her headache had disappeared, the liver was no longer palpable, and her 24-hour urine output had increased from 440 c.c. to 2150 c.c. In view of the excellent result obtained and the prematurity of the fetus, it was decided to maintain the epidural block for as long as possible.

For the next six days the patient was continued on the epidural block with daily improvement in her condition. Her urine output continued in excess of 2500 c.c., with only a faint trace of albumin and 18-20 red blood cells. The serum bilirubin level fell to 0.39 mg. %, and serum electrolytes remained normal. Fluid balance was maintained over this period with 5% glucose in water (intravenously) to which was added vitamins B and C. In addition, she received one dose of morphine sulfate 10 mg., and magnesium sulfate 10 g. i.m. six-hourly. High protein fluids, juices and beef tea offered by mouth were poorly tolerated.

On her sixth day the patient was started on pentolinium tartrate (Ansolsyen) preparatory to removal of the epidural catheter. During the next 12 hours her blood pressure suddenly rose to 180/110 synchronous with the appearance of grossly bloody urine and a drop in output to 120 c.c. over the next six hours. The epidural block was re-instated; her urine gradually cleared of blood and diuresis continued.

On the morning of April 30, labour began spontaneously and after five hours the cervix was found favourable for rupture of the forewaters.

During the second stage of labour, the patient's blood pressure rose to levels of 150 to 170 despite

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the administration of generous quantities of xylocaine. The patient, while receiving the epidural anaesthetic, was delivered by means of low forceps of a living female infant weighing 1900 g. The secundæ were sent to the pathology department for examination and revealed an area of infarction and numerous small fibrous placental villi.

During the next 18 hours her condition remained satisfactory and the epidural catheter was removed, having been *in situ* for 8½ days. There was no evidence of local reaction or infection during this time.

The puerperium proved uneventful. The patient's physical and mental condition steadily improved and she was considered well enough for discharge on her seventh postpartum day. She has been requested to return for assessment of her renal function at a later date.

Up to the time of writing the infant has continued to do well, with gradual but steady increments in weight.

#### DISCUSSION

The total clinical picture presented the problem of very severe fulminating eclampsia in a 26- to 28-week primigravida. It was immediately recognized that standard methods for controlling seizures and effecting adequate hypotensive results would offer little towards the safety of the very premature fetus in this instance. Furthermore, in a toxæmia of this severity fetal survival was made more precarious by the very distinct possibility of an early abruptio placentæ with or without premature labour. It was at this moment in our deliberations that we recalled the other salutary hypotensive effects of continuous caudal anaesthesia (a form of epidural anaesthesia) in a few cases of moderately severe pre-eclamptic toxæmia treated during the period 1942 to 1945 when we were actively using continuous caudal anaesthesia for most of our cases. We, therefore, decided to institute immediately continuous epidural anaesthesia with the thought in mind of continuing the procedure as long as possible until some event such as premature labour or severe complications of the toxæmic state made its discontinuance necessary. It was our hope that if the seizures could be adequately controlled and if the pregnancy and fetus seemed reasonably safe, we might eventually be able to shift from the epidural control to some other form of hypotensive therapy and thereby carry this pregnancy, now in a very dangerous condition, to a more mature stage in the interests of fetal salvage.

On reviewing the clinical events of this interesting case after the introduction of epidural anaesthesia, we were particularly impressed by the immediate disappearance of the eclamptic syndrome and by the fact that virtually no sedative medication was required apart from an initial dose of 10 mg. of morphine sulfate, supplemented by regular 10 g. doses of magnesium sulfate twice daily throughout the greater part of the ante-partum and immediate postpartum period.

Equally dramatic was the course of the urinary output during the next eight days. On admission, this patient had marked oliguria, with urine whose gross appearance suggested the presence of a fairly severe degree of renal failure. Immediately after the institution of the epidural method and subsequent control of the eclamptic syndrome, there was a remarkable diuresis which continued, as noted in Fig. 1, to shortly before delivery—

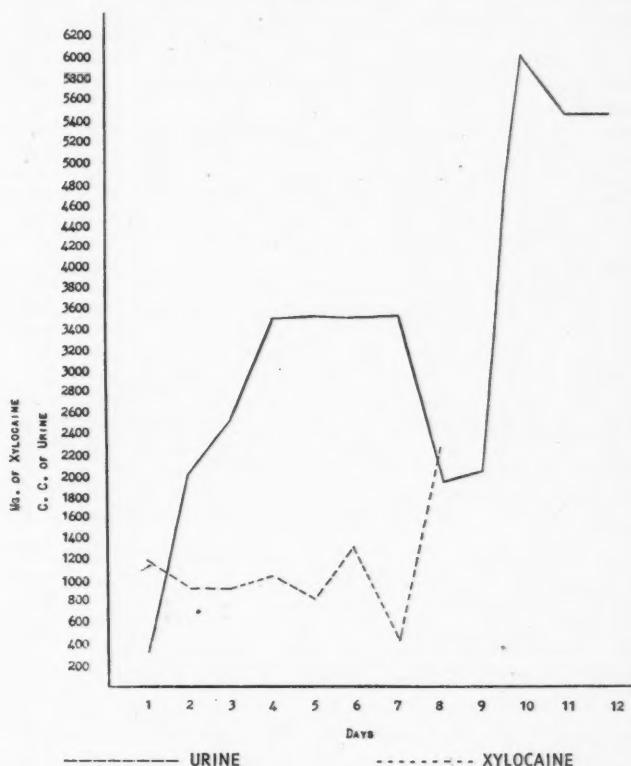


Fig. 1.

except for a second episode of oliguria which developed on the seventh day of management and seemed to occur synchronously with our attempt to withhold the epidural anaesthesia at the time chosen to start another hypotensive agent in the form of pentolinium tartrate (Ansolyse). However, impaired placental function and disease (indicated by the area of infarction and numerous small fibrous villi) and the altered renal function and oliguria may possibly be related to this.

Finally, as recorded, spontaneous premature labour ensued. The management of this phase was fairly easily accomplished owing to an already effective epidural anaesthesia. The paediatric consultant, who was present to outline the immediate care of this premature infant, felt that in this particular case the epidural anaesthesia had contributed greatly to fetal survival by allowing the fetus to remain *in utero* for possibly an extra week; ordinarily, some radical procedure designed to achieve a "safe" and empty uterus in the presence of acute toxæmia might have resulted in a more immature fetus.

## SUMMARY

A case of fulminating eclampsia in a 28-year-old primigravida managed conservatively with continuous xylocaine epidural sympathetic block is reported. The case culminated in a successful delivery of a 1900 g. infant and an uneventful maternal postpartum course.

## ADDENDUM

The following case, which has been managed in a fashion similar to the one reported, has recently come to our attention. A 40-year-old woman, para 4 gravida 5, at 36 to 38 weeks of gestation was admitted complaining of severe abdominal pain which had occurred after a two-week period of headaches, intermittent epigastric pain and general malaise. She gave a history of four normal pregnancies and confinements, but had neglected regular antenatal supervision with the current pregnancy. Clinical assessment at the time of admission suggested severe pre-eclamptic toxæmia with threatening abruptio placenta. Blood pressure was 180/140 mm. Hg, urine volume was reduced; urine contained a heavy deposit of albumin and gross blood.

A continuous epidural anesthesia, using xylocaine 1%, was set up in a manner similar to the reported case and carried on over a period of four days. The urinary output remained oliguric for the first two days and required careful control of electrolytes and fluid balance. On the third day, diuresis began and the urine cleared considerably, at which time medical induction with an intravenous drip of diluted pitocin was successfully instituted and resulted in delivery of a healthy male child of 6½ lb. During the antepartum period no sedative drugs were needed, and the postpartum course to date has been unremarkable.

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## AN UNUSUAL CASE OF BLEEDING PEPTIC ULCER WITH MASKED PSYCHOTIC DEPRESSION\*

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THE PURPOSE of this presentation is to indicate three interesting aspects of an unusual case of a patient with a severely bleeding peptic ulcer who refused operation. After 30 days of unsuccessful medical treatment, surgical intervention was considered the patient's only chance of survival. The following will be discussed:

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1. The different attitudes expressed by the medical staff when confronted with the patient's refusal of surgical intervention.

2. The shift in attitude which resulted from the awareness of an existing psychotic condition.

3. The dramatic results obtained both in the psychotic and the medical conditions after electroshock therapy and psychotherapy were introduced.

J.O., a 50-year-old single veteran and Roman Catholic, was admitted to the medical ward of Q.M.V.H. on October 20, 1958, with a history of crampy pains in the chest and legs, brought on by walking and relieved by rest. He had been dizzy, weak, and lethargic for one month; had had black bowel movements for some three months; gave no history of vomiting or abdominal pain and stated that he had bleeding hemorrhoids the previous year and bright red blood in his stools recently.

On admission the patient's blood pressure was 110/75 mm. Hg; pulse 102; respiration 20; Hb. value 32%, and hematocrit of 19 vol. %. He was decidedly pale, and had a grade I-II apical systolic murmur. Abdominal examination was negative; hypertrophied tags of tissue were present in the perianal area. Three sigmoidoscopic examinations suggested rectal bleeding as a possibility, but three complete barium series gave evidence of a duodenal ulcer. He received 10 bottles of blood during the first four days of hospital stay. This brought his Hb. level up to 80%, but his stools remained positive for blood, and the Hb. level dropped steadily despite repeated transfusions. By November 13 the Hb. level had dropped to 30%; red blood cell count was 1,910,000; hematocrit was 17 vol. %. During that time he was kept on a strict ulcer diet and in addition received phenobarbital and propantheline bromide (Probanthine). In all, he received 26 bottles of whole blood in one month.

From the start the surgeons were convinced, and became increasingly so, that operation was the only measure that could save the man's life. However, the patient was extremely stubborn and categorically refused any form of surgery. Various doctors, his mother and his parish priest, as well as the hospital chaplain, attempted to convince the patient of the seriousness of his condition which surgery alone could alleviate, but were without success. Since the surgeons could not perform the operation without the patient's consent, the situation seemed hopeless. In addition, logical protests began to emanate from the blood-bank staff. A psychiatrist was called in for consultation but his examination did not reveal the presence of any psychosis. One of the authors (J.M.) was asked to reconsider the case from a psychiatric viewpoint. It was felt possible from the beginning that the patient's unusual attitude might conceal a severe psychiatric condition, probably in the nature of a depression. This was important since it led to increased efforts to uncover a possible psychiatric condition. After further interviewing, it was learned that the patient was torn between a fear of dying from being "cut open" and a deep sense of unworthiness and depression which led him to feel that he did not care if he died. For example, he stated that since he was not married, he had nothing to live for, and when the topic of religion was discussed, it was suggested to him that his attitude was in contradiction with his own understand-

ing of his Roman Catholic religion. He admitted, with some display of emotion, that he was a very religious man and puzzled by his own present attitude, but that he felt nevertheless he must die and therefore could not sign the operation consent form. His strong suicidal impulses, together with his intense guilt feelings and fear of punishment, were accompanied by inconsistent and bizarre excuses: at one time he claimed he could not let anybody "cut him" and at other times he denied the existence of the illness. He fluctuated between fearing death one minute and believing there was nothing wrong with his health the next minute. The degree of psychomotor retardation was moderate; affect was definitely flattened, and at times the patient appeared anxious despite his unusually rigid facial expression. A diagnosis was made of psychotic depression in a schizoid personality.

Once this psychiatric diagnosis had been made, and the existence of a psychosis thereby established, commitment procedures were possible, and the necessary surgical procedure could be performed with the consent of the nearest relative. However, at this point the surgeons became markedly ambivalent, expressing fears that the patient might not survive an operation which he did not want. Finally it was decided to transfer the patient to the psychiatric department and to treat his depression intensively. It was assumed that surgical intervention would be employed only in the face of dire emergency.

On November 26, 1958, he was given ECT twice under general anaesthesia, and was given chlorpromazine 100 mg. three times a day. He received ECT five additional times, administered on the following dates: November 27 and 28, December 2, 5 and 12. This made a total of seven. The patient received intensive psychotherapy throughout his hospital stay in our department, and after the first few treatments with ECT began to show rapid and steady improvement in both his physical and psychiatric conditions. He became much more co-operative, and his insight improved daily.

During this time haematological tests were performed every second day: RBC count rose from 1,910,000 to 4,130,000 (while the patient was receiving ECT: November 26 to December 12); Hb. value rose from 32% to 72%, and haematocrit from 17 to 34 vol. % (see Fig. 1).

Psychological tests (January 15 and 16) indicated average intelligence (full I.Q., 96; verbal I.Q., 95; performance I.Q., 98), and the Rorschach report read: "The approach to situations, deviant thinking, and autistic logic suggest a possible chronic simple schizophrenic picture, but with only occasional breaks in reality testing."

On December 30 chlorpromazine was decreased to 50 mg. three times a day, then to 25 mg. twice daily on January 6 and discontinued on January 28.

The patient continued to improve: he felt quite well, and was free from any complaints, physical or psychiatric. The control radiograph, as well as repeated surgical examinations, did not reveal any evidence of his former bleeding peptic ulcer. At the time of discharge his RBC count was 4,460,000; Hb. level, 90.4%, and haematocrit value, 36 vol. %. He was discharged on January 30, stating at the time: "I'll take it easy. I am aware that the doctors saved my life. I was in real danger."

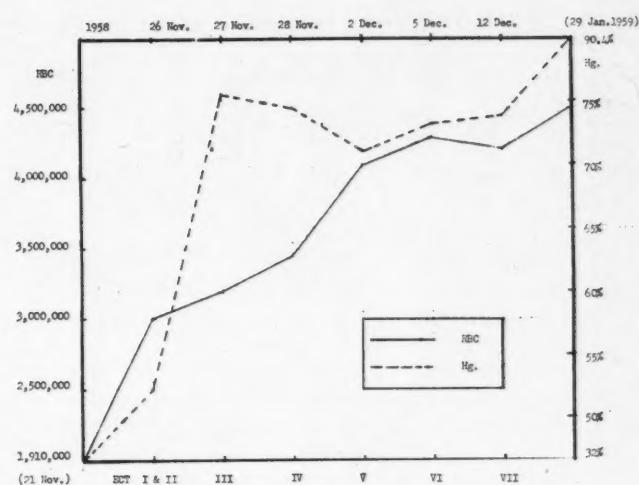


Fig. 1.

For the next six months the patient was followed up regularly in the outpatient department, during which time his condition was satisfactory.

#### DISCUSSION AND SUMMARY

When the psychiatrist, knowledgeable in Roman Catholic thinking with respect to suicide, approached the patient as a reasonable but troubled human being, the true situation became almost immediately apparent, and it was realized that we were dealing with a frightened, depressed person in need of support and unable to cope with decisions adequately. He agreed to electroshock treatment but suddenly, at the time the first treatment was to be given, refused. He was again seen by one of us (F.H.) and he said, "You had better give it to me right away before my crazy ideas come back again." It would appear that his basic attitudes towards surgery and towards electroshock treatment were identical and that the differences in response depended on the approach. It is of interest that as the depression was lifting the haemoglobin level kept rising and the patient required no further transfusions. This patient's depression was masked, because of obsessive-compulsive controls and a complete denial of the illness. This attitude of denial can be considered a psychotic defence and persisted throughout the treatment. Towards the end of his hospital stay the patient was strongly aware that the doctor had "saved his life". It is of interest that after six months of follow-up without medication, the patient remains free of digestive and psychiatric symptomatology. We feel that the approach described above has been strikingly successful in the cure of this patient considered by many specialists a hopeless case.

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AVE ATQUE VALE

The departure of Dr. Stanley Gilder, the distinguished Editor of the *Canadian Medical Association Journal*, is an event which has been received with feelings akin to dismay by his colleagues on the staff of The Association and by the membership generally.

We are fortunate to have enjoyed his services for a period of six years because it was on February 12, 1954, that he came to us from Geneva and London. Few persons could have acquired the viewpoint of Canadian medicine so quickly or reflected it so accurately in our publications. He established himself with investigators and clinicians and was immediately accepted as a man of understanding and perception in all his dealings with authors. No ivory-tower editor, he soon was a welcome guest and participant at gatherings of research workers, academic bodies and medical meetings of all kinds from St. John's to Victoria. The breadth of his interests has been reflected in his writings and the stamp of his high standard of literary style has been evident throughout our publications.

It is the task of the Staffing Committee and the Executive Committee to find a worthy successor. The standards which he has established make this very difficult but it is hoped that there will emerge, not another Gilder, but a man who can, by the qualities which he brings to the appointment, become as faithful a reporter of the Canadian medical scene. Dr. H. E. MacDermot, our Editor Emeritus, has been induced to return from his busy retirement to assume the post of Acting Editor and the membership may be assured that the important publishing activities will not lapse.

To Dr. Gilder we wish every satisfaction in his new appointment in the United Kingdom. His name and fame as our Editor will occupy a unique place in the collective memory of The Canadian Medical Association. His friends and intimates will miss him for those personal attributes which have endeared him to us all.

PARTIR C'EST MOURIR UN PEU . . .

Le lecteur averti aura peut-être remarqué que pour la première fois depuis six ans le nom du Dr Gilder ne figure pas au générique de la rédaction. En effet le rédacteur en chef a quitté *le Journal de l'Association Médicale Canadienne* hier pour entrer à l'emploi de la compagnie de produits pharmaceutiques Geigy. Ses nouvelles fonctions consisteront à organiser des colloques médicaux sur différents sujets, réunissant des autorités mondiales. Ces assises se tiennent dans divers pays et les rapports en sont publiés sous le nom de Documentation Geigy. Les membres de notre profession dont le renom dépasse nos frontières auront donc l'occasion de le revoir. Les autres, qui forment la masse de nos lecteurs, se rappelleront sa prose facile et son esprit de synthèse. Ceux qui l'ont connu garderont le souvenir de son entregent, de son sens de l'humour et de sa bonne connaissance de la langue française. Pendant son séjour au Canada, le docteur Gilder a noué de solides liens d'amitié; il a dû se faire violence pour les quitter, mais l'attrait de retourner dans son pays d'origine a prévalu.

Il a bien mérité de l'Association et nous lui sommes reconnaissants des services qu'il a rendus au Journal. Nos meilleurs vœux de succès l'accompagnent dans sa nouvelle entreprise.

RETOUR A L'A.M.C.

Nous sommes heureux d'accueillir le Dr H. Ernest MacDermot à la Rédaction du *Journal de l'Association Médicale Canadienne*. Homme de goût et d'expérience, le docteur MacDermot a déjà assumé la direction du Journal dans le passé et n'a pas hésité à se démettre temporairement de ses fonctions à l'Hôpital Général de Montréal pour assurer la relève du poste de rédacteur en chef laissé vacant par son prédécesseur (qui était aussi son successeur) le Dr S. S. B. Gilder, actuellement en route pour l'Angleterre. Le docteur MacDermot est avantageusement connu par son ouvrage intitulé "History of the Canadian Medical Association" dont le deuxième volume a paru l'an dernier. On lui doit aussi plusieurs articles sur l'histoire de la médecine au Canada. Nos lecteurs sont donc assurés que le Journal est entre bonnes mains.



*Alex Gray, Toronto*

On January 12, at the invitation of Dr. and Mrs. T. C. Routley, the Journal and Secretariat staff gathered at the York Club, Toronto, for a farewell dinner party in honour of Dr. and Mrs. S. S. B. Gilder. As a token of the appreciation of The Association, the Editor and his wife were presented with luggage.

Standing, from left to right: Dr. T. C. Routley, Mrs. Freamo, Dr. G. T. Dickinson, Mrs. Dickinson, Dr. E. Kirk Lyon (Deputy to the President), Mrs. Routley, Mr. D. A. Macaulay, Mrs. Macaulay, Mr. K. C. Cross. Seated: Dr. M. R. Dufresne, Mrs. Kelly, Dr. S. S. B. Gilder, Mrs. Gilder, Dr. A. D. Kelly and Mr. B. E. Freamo.



*Alex Gray, Toronto*

The cheerful appearance of the guests at the staff party belies their true feelings on this occasion.

This is no laughing matter and they would agree with Byron:

"If I laugh at any mortal thing  
'Tis that I may not weep."

*Editorial Comments*

## DRINKING AND DRIVING

The problem of drinking and driving is not one which lends itself to easy solution, in spite of a considerable volume of research and writing on the subject. Much remains to be done, including the obtaining of accurate figures on the actual incidence of alcohol as a factor in traffic accidents. Since car driving in present-day traffic is such a complex requirement of various skills, the additional factor of alcohol is only one of many which enter into the picture. However, when one's own experience is that the majority of fatal accidents are at least associated with, if not caused by, alcohol, it suggests the need for additional investigation and education in this field.

Most accounts of driving experiments and published statistics on accidents agree that moderate to large amounts of alcohol adversely affect the driving skills of most, if not all, people. Considerable controversy still exists as to the effects, if any, of small amounts of alcohol on driving skills. The Medical Research Council of Great Britain recently published its Memorandum No. 38, entitled "Effect of Small Doses of Alcohol on a Skill Resembling Driving". This excellent piece of work was done by G. C. Drew, W. P. Colquhoun and Hazel A. Long, on behalf of the Committee on Road Users, appointed jointly by the British Medical Research Council and the Road Research Board of the Department of Scientific and Industrial Research. A summary of this work was published in the *British Medical Journal* (2: 993, 1958).

The results of this investigation are of considerable interest and importance. In these experiments, actual car driving was not used. A fixed car-like apparatus (a Miles motor-driving trainer) was "driven" by the subject along what appeared to be a winding road. By using this apparatus rather than actual road tests it was possible to obtain automatic records of the "driving" speed, tracking errors, steering-wheel and accelerator movements, gear changes, brake applications and curb bumpings. Each subject was his own control; that is, changes, if any, from his established normal could be compared and measured after the consumption of alcohol.

One can find little to criticize in the way in which this experiment was conducted. Amounts of alcohol given to the subjects were relatively small so that blood alcohol levels ranged between zero and a maximum of 100 mg. per 100 ml. of blood. For the subject of average weight this represented a maximum alcohol intake of the equivalent of three pints of beer or five ounces of whiskey. The mean peak blood alcohol concentration for the doses ranged from 20 to 80 mg. %.

The result of this investigation demonstrated conclusively that for such complex skills as are needed in car driving, impairment begins at very low levels and that there was no threshold level below which changes were not produced. Changes were noted at levels as low as 20-30 mg. %, and, in general, performance deteriorated with increasing alcohol doses and blood alcohol levels and this deterioration was progressive.

It was further demonstrated that the effect of a given dose of alcohol is different for different kinds of behaviour, and that the more complex behaviours mediated by higher brain centres are likely to be affected earlier and to a greater extent than the more simple components of behaviour. This experiment, in contrast to a number previously reported, was so designed that a number of the component parts of the total driving skill could be individually and accurately measured, and could hence be evaluated separately as well as being measured in the overall performance. A clear effect of alcohol was demonstrated on the overall performance and these effects were even more clearly shown on the components of the total skill of car driving. It was also clearly shown that even when no clinical signs of intoxication were demonstrated, definite impairment of skilled performance was evident.

A study of the personality characteristics of the subjects in relation to performance was also undertaken. The subjects were classified on the extroversion-introversion scale as well as other types of personality ratings. It is interesting to note that in this study extroverts did not alter their speed of driving to any extent, but did show a large increase in error. The introverts, however, showed changes in speed by both increasing and decreasing, and they also varied considerably in the extent of increased errors, yet the mean changes of errors for the introverts were less than that for the extroverts.

In summary, the authors state that from their experiments, using relatively small amounts of alcohol, drivers take greater risks than they would normally and they are also less efficient in dealing with these hazardous situations.

From the technical standpoint, it is shown that there is good correlation between blood alcohol levels, urine alcohol concentration, and the breath analysis by the Breathalyzer instrument.

This careful study is a most welcome contribution to the sometimes confusing literature on the subject of drinking and driving. Certain clear-cut conclusions should be of value to those who are interested in this subject, especially those who advocate changes in our present laws relating to drinking and driving.

D. W. PENNER

## FATTY LIVER AND DIABETES

Since the introduction of liver biopsy, it has become increasingly obvious that the association between cirrhosis of the liver and diabetes is much more frequent than reports in the older literature would indicate. Kalk (*Deutsche med. Wochenschr.*, 84: 1898, 1959) has found 39 cases of cirrhosis among 121 diabetics from whom he obtained liver biopsies. This high incidence of 32% is much greater than hitherto reported. On the basis of clinical data and histological findings, the author concluded that diabetes preceded cirrhosis in 18 cases, whereas in 16 hepatitis or cirrhosis was known to have been present before the clinical

appearance of diabetes mellitus. In the latter group post-hepatitic cirrhosis was most frequently encountered; hence, the chain of events was apparently hepatitis-cirrhosis-diabetes.

In diabetics, infectious hepatitis is a much more severe disease and is more likely to lead to cirrhosis. In addition, diabetics are more predisposed to infectious hepatitis, partly because of their greater tendency to infection and also because repeated insulin injections expose them to haematogenous infection. The author does not believe, however, that this is the whole explanation for the frequent association between diabetes and cirrhosis. According to him, the etiological connection is by way of the fatty liver. Fatty liver was found in 48% of 102 histologically examined livers of diabetics who were mostly older persons. His observations on fatty liver in malnutrition confirm the opinion, which is contrary to that of the majority of authors and particularly of pathologists, that cirrhosis can develop in a fatty liver. Transition from fatty liver to cirrhosis was found also in the present material from diabetics. Of the 49 fatty livers, 26 were found to be in stage I and three in stage I/II. Ten were in stage II, one in stage II/III and two in stage III. Transition from stage I to II was observed in three cases, from stage II to III in one case, and from stage III to II in one case. Surprisingly, transition from stage III to recovery was observed in one case and from stage I to recovery in another. The latter improvements were observed in diabetics who underwent biopsy a second time after appropriate treatment had been instituted and the diabetes well controlled.

Study of liver enzymes carried out for many years in Kalk's clinic have shown that as long as the fatty liver has no elements of cirrhosis its enzyme activity is that of a normal liver. As soon as the mesenchymatous reaction appears, increased enzyme activity is observed as in hepatitis. Histologically, the fatty liver of the diabetic shows, in addition to the large droplet, fatty infiltration (predominantly peripheral) and nuclear vacuolization, which is regarded as due to deposition of glycogen. Several patients in whom this picture was found in the absence of clinical diabetes are known to have developed the disease at a later stage. Similarly, it was observed that in patients in whom diabetes was recently discovered fatty liver was already fully developed. One has to conclude, therefore, that this particular type of fatty liver may precede the clinical appearance of diabetes mellitus for some time. In five patients it was possible to predict the development of diabetes within one to two years on the basis of the characteristic findings on liver biopsy, and this was indeed confirmed by later developments. In other similar cases strict adherence to a restricted carbohydrate intake has resulted in improvement of the fatty liver condition and prevention of diabetes mellitus development. The marked increase of fatty liver in patients of his clinic in the early post-war years was due to malnutrition of returnees from prison camps, whilst the present-day high incidence is due to over-feeding and high alcohol intake. Histological recognition of fatty liver should not only enable one to prevent develop-

ment of cirrhosis but also help in prophylaxis of diabetes through correction of the diet and improvement of the fatty liver.

W. GROBIN.

#### FINANCIAL PROBLEMS OF PROGRESS IN MEDICINE

Never before have economic, financial and political problems in connection with research and progress in science and medicine been discussed to the same extent as during the past few years. The medical practitioner all over the world is usually too busy and preoccupied with minor and major problems arising from his work to pay much attention to these questions, generally considered to be someone else's business. It is not until we notice some shortcomings, or experience some difficulties in our work, that we stop to think of the financial implications of all fields of medical activities. While we are proud of the progress and achievements in medicine during our lifetime and the increasing scientific, diagnostic and therapeutic possibilities presented to us, we have to remind ourselves that this all costs money and that poorer countries may not be able to afford these luxuries.

If only for psychological reasons, it is worth while having a glimpse of what is going on in other parts of the world, to see how financial restrictions are influencing progress in medicine. Vienna, for centuries one of the world's leading scientific centres, and Mecca for thousands of students from all parts of the globe, seems to be a typical example. Two world wars have reduced this great capital city of a large empire to the hydrocephalic capital of a small country, striving hard for independence and a higher living standard. Dr. L. Schönauer (*Wien. med. Wchnschr.*, 109: 850, 1959), the leading Vienna surgeon and neuro-surgeon, Professor of Surgery and Director of the huge Vienna General Hospital, has the courage to admit that in some fields, particularly in surgery, progress is lagging behind other centres of the Western world at a rate of about five years. Among the missing factors he mentions are lack of well-trained ancillary personnel, well-equipped operating theatres, recovery rooms, laboratories, modern facilities for experimental surgery, opportunities of keeping abreast with large centres of the world through postgraduate students, and modern facilities for diagnostic procedures. He stresses the point that there is no lack of capable and enthusiastic doctors. However, there is an increasing tendency all over the world to employ objective criteria to substantiate diagnoses that could be made by purely clinical means, and this requires expensive pieces of apparatus which are fast superseded by newer devices. The Vienna medical school gained its great reputation in the past mainly through keen clinical observation. Since the emphasis in medical science and practice has switched from a strictly clinical approach to a technical one, financial implications have come to the fore to a much greater degree than ever before in the history of medicine. Although we must not overestimate the value of material things in medicine, we should constantly be aware of their increasing importance.

M. TYNDEL

**Medical News in brief****EMOTIONS AND HEART FAILURE**

Any disease which is a disturbance of the total organism, such as congestive heart failure, is bound to involve the emotions and psyche. By the same token, emotions and psychological factors are bound to have an effect on an already embarrassed circulatory system. Vernon, Martin and White of Chapel Hill, North Carolina, investigated 30 patients who were being treated for cardiac decompensation. Their emotional problems and reasons for cardiac failure were correlated and it was found that five of the patients had both direct and indirect effects of emotional psychological factors responsible, to some extent, for the precipitation and perpetuation of congestive heart failure. The other 25 patients had either direct or indirect factors present in these circumstances. By investigating emotions and psychological factors, it may be possible to obtain important clues to the individual problems of the patient's congestive heart failure and the reasons for its lack of response to treatment. In some cases it will be found, as in this group, that the patient's failure to take his medication was related to the deep-seated denial of his disease or refusal to accept the reality of his cardiac disorder. Reference is made to well-known popular expressions regarding relationship between heart and mind, e.g., "I almost had a heart attack," or "it gave me heart failure."

Practical considerations are outlined as follows. (1) Anxiety is produced by the circulatory disorder and can be relieved by the physician's accepting responsibility for the treatment. (2) By accepting and indeed demanding the patient's dependency on him, the physician may relieve the "calls for help" which congestive heart failure represents. (3) Dependency of the patient has to be gratified during the acute stage whilst the physician consciously prepares him for rehabilitation. (4) Additional anxiety may develop during the course of the illness and the physician has to be aware of it and relieve it as far as possible. (5) Fear of the unknown can be relieved by the physician if he helps the patient understand his own illness—*J. A. M. A.*, 171: 1947, 1959.

**CHRONIC LUMBOSACRAL STRAIN**

The results of management of 150 consecutive patients with chronic lumbosacral strain by physiotherapy (without formal manipulation under anaesthesia) were compared with those from a similar group managed by manipulation under general anaesthesia. Bremner and Simpson (*Lancet*, 2: 949, 1959) found little difference between them: after four weeks 55% were cured, 32% had improved and 13% were unchanged or worse.

The physiotherapy was given three times weekly in the form of deep massage to the lumbosacral region, localizing any tender spots. If there was much spasm, short-wave diathermy was also applied. The spine was then manipulated in rotation, after the method of Wiles. Subsequent freedom from trouble was felt to depend much more on the patient's ability to "learn to live with his back" than on the treatment given.

**SEVERE INFECTION IN ADULTS  
CAUSED BY E. COLI**

Three cases of infection with *Escherichia coli* in adults, in which the organisms appeared to have excessive virulence not only for the patients but also experimentally for mice, are reported from Milwaukee (*New England J. Med.*, 261: 1056, 1959). The strains which caused the infections not only appeared not to belong to any of the known serotypes, but were apparently much more virulent for mice than the so-called enteropathogenic strains held responsible for epidemic diarrhoea in children. In each case a generalized systemic disease was caused. In the first case there was a shock-like picture in a patient on whom labour had been induced, the typical one of so-called "Gram-negative bacteraemia". In the second case a crepitating infection spread rapidly up the abdominal wall in an elderly man over a period of 12 hours. This proved not to be a gas-gangrene infection, but an infection with *E. coli*. In the third case, the patient had a diffuse bronchopneumonia.

The strains of *E. coli* isolated from the three patients were identified by the usual laboratory methods, and the virulent strains were found to be resistant to the bactericidal activity of human serum. It is noteworthy that the strains did not produce excess of endotoxin. An unusual invasiveness may have been a factor in the outcome of the disease. Preliminary studies suggest that the virulent strains were all of one serotype group, although they were isolated from three different hospitals in two different communities.

**OBJECTIVE EVALUATION OF EFFICACY  
OF ANTI-PARKINSONIAN DRUGS**

Physical analysis of movements in patients with Parkinson's disease was described by Birkmayer and Seemann (1957) who used a stroboscope to record the movements of patients. Langner and Neumayer modified their method and utilized their own studies in order to evaluate the effects of anti-parkinsonian drugs on patients' movements and rigidity (*Wien. med. Wochenschr.*, 109: 824, 1959). The method is briefly described and mathematical equations are given for the acceleration and retardation of muscular activity. In all, 50 patients were treated with procyclidine (Kemadrine) and trihexyphenidyl (Artane).

Procyclidine was seen to have an influence on the pushing action of muscles, both in accelerating and also delaying it, whereas it did not improve pendulum movements. Trihexyphenidyl, on the other hand, was effective on pendulum activity. Thus, the main activity of the former drug was directed against akinesis and only secondarily against rigidity. Although the main object of this study was to prove the possibility of expressing objectively the effects of treatment on muscular activity of patients with Parkinson's disease, the authors were able to prove to their satisfaction that one of the actions of these anti-parkinsonian drugs was very much like tranquillization. The reason for the plethora of anti-parkinsonian drugs may lie in the fact that each one of them acts differently on one or the other of the three major components of the disease — rigidity, tremor, and akinesis.

(Continued on advertising page 36)

## NEW DRUGS

This listing of new products is based on information received from Dean F. N. Hughes, Faculty of Pharmacy, University of Toronto, and the *Canadian Pharmaceutical Journal*, to whom we owe thanks.

### ANTIMICROBIALS, ANTIBIOTICS, BACTERIOSTATICS

**Synthetic Penicillin (α-phenoxyethyl) penicillin. Potassium Penicillin 152: SYNCILLIN Instant Oral Solution (Pr), Bristol**

**Description.**—Each teaspoonful of reconstituted cherry-red syrup contains 125 mg. Penicillin 152 Potassium.

**Indications.**—Infections caused by pneumococci, streptococci, gonococci, corynebacteria, staphylococci and various strains resistant to other penicillins.

**Administration.**—Children 10 years and over 5 c.c. teaspoonful 3 times daily, without regard to meals.

Younger children: in proportion.

**How supplied.**—Bottles of 60 c.c., powder form to be reconstituted by adding water as directed.

**Tetracycline hydrochloride: POLYCYCLINE Intravenous (Pr), Bristol**

**Description.**—Each vial contains 250 mg. or 500 mg. tetracycline HCl in dry powder, buffered with ascorbic acid.

**Indications.**—Severe infections due to tetracycline-sensitive organisms only where oral therapy cannot be used.

**Administration.**—Average adult dose is 500 mg. by intravenous injection or drip every 12 hours. Dosage may be increased to 500 mg. every 6 hours depending on severity of disease and response of patient.

Children according to weight.

**How supplied.**—5 c.c. dry vials 250 mg.; 15 c.c. dry vials 500 mg.

**Neomycin, Polymixin, Bacitracin: NEO-POLYCIN, Pitman-Moore (Antibiotic Ointment)**

**Description.**—Contains 3 mg. of neomycin, 8000 units of polymyxin B sulfate and 400 units of bacitracin in special Fuzene base which is miscible with blood, pus and tissue exudates.

**Indications.**—In prevention or control of cutaneous infections; in pyoderma such as impetigo, folliculitis, paronychia; in sycosis barbae; also in secondary bacterial infections complicating treatment of burns, eczemas, contact dermatitis, seborrhoea, acne, psoriasis, varicose ulcers and neurodermatitis.

**How supplied.**—Tubes of 5 g. and 15 g.

**Sulfamethizole: THIOSULFIL Tablets, new potency (Pr), Ayerst**

**Description.**—Each tablet contains 0.5 g. sulfamethizole.

**Indications.**—Pyelonephritis, ureteritis, prostatitis, cystitis, and urethritis due to bacterial infections amenable to sulfonamide therapy; pyelitis of pregnancy and relapsing colitis; palliative treatment in incurable pathological conditions; prophylactically, in patients requiring indwelling catheters, or following endoscopic operations.

**Administration.**—Adults: One tablet four times daily. (Fluids should be restricted rather than forced.)

**How supplied.**—Bottles of 50 and 500.

**Phenylazodiaminopyridine HCl — Sulfamethoxypyridazine: AZO KYNEX (Pr), Lederle**

**Description.**—Each press-coated tablet contains a core of 150 mg. phenylazodiaminopyridine (urinary analgesic) with a press-coated covering of 125 mg. of sulfamethoxypyridazine (low-dosage sulfonamide).

**Indications.**—Urinary tract infections due to sulfonamide-sensitive organisms, e.g., *E. coli*, *Aerobacter aerogenes*, *paracolon bacillus*, *streptococci*, *staphylococci*, Gram-negative rods, *pneumococci*, *diphtheroides*.

**Administration.**—Suggested adult dosage for moderate infections is 2 tablets every 6 hours for first day, followed by one tablet every 6 hours each day thereafter for 5 to 7 days or until the patient is asymptomatic for 48 to 72 hours. Adequate fluid intake must be maintained.

**How supplied.**—Bottles of 24 and 100.

### R.A.H.C., Rybar

**Description.**—2-N-benzylanilinomethyl-iminazoline 2.00% B-p-tert. octylphenoxyethyl diethyl benzyl ammonium chloride 0.50%, cholesterol 0.05%, titanium diox. 5.00%, calamine 10%, hydrophilic base to 100.00.

**Indications.**—Allergic eczema, urticaria, pruritus and other allergic conditions of the skin.

Bactericidal against a variety of organisms including *Streptococcus haemolyticus*, *Staphylococcus aureus*, *Bacillus subtilis*, *Bacillus coli* and *Bacillus proteus*.

**How supplied.**—Collapsible tubes containing 25 g. (approx.).

## TRANQUILLIZERS

### MEPHECOL, (N), Poulenc Anxiolytic formula

**Description.**—Each tablet represents: methopromazine 3 mg., aminopromazine 6 mg., codeine 2.5 mg., phenobarbital 5 mg., piperazine HBr 150 mg.

**Indications.**—Nervousness, apprehension, anxiety states.

**How supplied.**—Bottles of 50, 500 and 1000.

## NARCOTICS, ANALGESICS

### Oxymorphone: NUMORPHAN (N), Endo

**Description.**—Oxymorphone (1,4-hydroxydihydromorphine) HCl, rapidly acting, long-lasting analgesic.

**Indications.**—All cases of acute and chronic severe pain, e.g., preoperative and postoperative pain, and pain in obstetrics, trauma, cancer, renal and biliary colics, occlusion with myocardial infarction, etc.

**Administration.**—Subcutaneous and intramuscular: average adult dose 1 c.c. (1.5 mg.) every 6 hours.

Rectal: average adult dose 2 to 5 mg. every 6 hours. In non-debilitated patients, the dose may be cautiously increased until satisfactory pain relief is obtained.

**How supplied.**—Vials 10 c.c., singly and boxes of 3.

Ampoules, 1 c.c. (1.5 mg.) and 2 c.c., boxes of 12 and 100.

Suppositories, 2 mg. and 5 mg., boxes of 6.

### Carisoprodol: RELA, Schering

**Description.**—Tablets of carisoprodol 350 mg., analgesic muscle relaxant with low toxicity.

**Indications.**—For relief of pain, spasm and stiffness in various acute inflammatory, degenerative and traumatic muscle and joint disorders.

**Administration.**—Suggested adult dosage is one tablet 3 times daily and at bedtime. Has a rapid onset of action, relief usually being apparent within 30 minutes and persisting for as long as 6 hours.

**How supplied.**—Bottles of 30.

## GANGLION BLOCKING AGENT

### Bretiyium tosylate: DARENTHIN, B. W. & Co.

**Description.**—Each tablet contains 200 mg. bretiyium tosylate (N-*o*-bromobenzyl-N-ethyl-N:N-dimethylammonium p-toluenesulfonate), hypotensive agent acting by selective block at postganglionic sympathetic fibres.

**Indications.**—Hypertension. (See page 438 of this issue).

**Administration.**—Dosage individualized. Suggested initial dose is 200 mg. 3 times daily; may be increased by adding 100 mg. daily to the dose each day until the desired effect is achieved. Average daily dose is about 1 g.

Effect may be enhanced by diuretics, such as chlorothiazide, or hypotensive agents, such as reserpine.

**Contraindicated.** in phaeochromocytoma and recent myocardial infarction. Should be used with caution in marked cerebral and coronary arteriosclerosis.

**How supplied.**—Bottles of 100 and 500.

## MEDICAL ECONOMICS

## THE NEW ZEALAND MEDICAL SERVICE — AN APPRAISAL\*

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THIS ARTICLE has the following major headings:

1. The social setting
2. Why medical services were publicly organized
3. The enactments under social security with an appraisal of each
4. Specialists and consultants
5. Medical education and research in New Zealand
6. Cost and taxation—New Zealand compared with U.K., U.S.S.R. and U.S.A.
7. General evaluation.

Part One, which includes the first three, is presented below and Part Two will appear in the next issue.

## I. THE SOCIAL SETTING

New Zealand is a delightful and varied country from the climatic and geographical points of view, remotely situated in the S.W. Pacific, its nearest neighbours being the Fiji Islands, 1200 miles to the north, and the east coast of Australia about the same distance to the west. It was officially annexed by the British Crown in 1840 from the Polynesian race of Maoris, who were discovered living there by the Dutchman, Abel Tasman, in 1642, and the great British navigator, James Cook, in 1769. At first the Maoris, a fine and genial race of fishers, hunters, elementary agriculturalists and sporting warriors, suffered badly from the loss of their lands, and the diseases, weapons and other hurts brought by the white man. They seemed headed for extinction about 1900, but since then they have shown a remarkable vitality and now have a birth rate much above that of the white man. They number some 120,000 or about 5% of the total New Zealand population of 2,500,000. This proportion at present precludes any serious inter-racial strain, but it is more the small ratio than specific toleration and adjustment that is to be credited with this. It is true that from the outset both Maori and Pakeha (or white man) were full and equal citizens, and had equal rights of admission, for example, to the public hospitals, from 1840 to this day. They elect four members to a parliament of 80 members, and share schools and university education on equal terms. They are an amiable, generous, somewhat improvident people who are now taking to the European style of farming, but who also tend to congregate in the cities as unskilled labourers. They partake freely of the benefits—family allowances, etc.—under our social security system, and as a section are cultivated by politicians anxious to gain and hold office. For their part they feel that the white man cannot do too much for them, since he has taken away almost all their lands and imposed an alien mode of life upon them.

The Pakeha settlement in New Zealand has been mostly of British origin. The English and the Scots have been prominent elements, and while well-to-do and cultured persons have always been numbered amongst

the immigrants, the majority have been those whose lot was a hard one in their home country and who have sought a better climate and a better future for their children here. Latter-day immigration of the planned and organized sort, though felt to be necessary or even clamant by some, has been slow by comparison with Australia, and has brought only an average of 10,000 per annum since the war; British, Dutch and Continentals predominated. In the past German, Scandinavian, and Yugoslavian groups have formed individual increments, and before the war the world-wide Jewish dispersion brought a certain number. By religions, the composition is as shown in Table I.

TABLE I.—RELIGIOUS DENOMINATIONS IN NEW ZEALAND

Church of England	34%
Presbyterian	22%
Methodist	7%
Roman Catholic	14%
Others	23%
	100%

The early days of timber-cutting, gold-winning, and clearing-the-country, produced many strongly individual and self-reliant types. Latterly there has developed an easy-going temper. On the whole, life has been easy with high world or overseas prices for agricultural products. Industry and technology have been poorly developed. There is as yet no oil or natural gas; hydroelectric power, and recently geo-thermal steam power, with some reliance on coal, have predominated as sources of electricity. The first steel mill using scrap iron is just being built, but it is likely to be a long time before the technically difficult iron-sands will be used for steel production for such a small population. Also, Australian conditions for steel production are so extremely favourable as to constitute a powerful deterrent to us. The same goes for aluminium and uranium, though we are not without natural resources in these. Our chief technical development lies in timber, pulp, and paper manufacture from our successful exotic forests. One effect of the relative absence of engineering and technology has been an undue attention to medicine as a career for boys and girls who are strong on the science side. This trend is likely to diminish in future years.

No doubt with the idea of redressing the wrongs of Victorian Britain with its dark satanic mills, New Zealand early developed a taste for equalitarianism and the welfare state. We were the first country—in 1893—to give votes to women, and to their influence Condiffe attributes much of our preoccupation with social amelioration: early equalization of divorce rights, and in 1898 the first old-age pensions enactment, and gradually over the next 40 years to the full blast of social security. Genuine humanitarianism has played a part in all this, but many begin to wonder in these days of crippling taxation and controls of all sorts (on imports, exports, movements of capital, etc.) whether we have not bent too far backwards to protect the weak; to provide, for example, educational facilities for all, including some who do not like them and cannot use them. We have certainly removed the offences of poverty and destitution, but we have also drawn the teeth from the potential leaders of industry and public life; mediocrity and complacency are now our national vices.

## II. WHY MEDICAL SERVICES WERE PUBLICLY ORGANIZED

The public organization of medical services seemed in the air in the British Commonwealth countries at the close of World War I. Perhaps it was Lloyd George's introduction of the panel service for general practitioners in the United Kingdom just before that war that showed the way. Military service in army hospitals prepared the minds of some of our doctors for it, but times were good and nothing happened.

Then came the financial depression in the early 1930's with its widespread misery and frustration. In many ways this crisis had more impact on the people of New Zealand than both the World Wars put together. Fear and uncertainty stalked the land: farmers poured their milk down the drains because no one could or would buy it, and families were restricted from fear of the expense of having and rearing children. It was the most disastrous period in our history; fortunately later decades changed the tune, and particularly during and after the second war the birth rate rose and people seemed to have regained confidence in life and love and living.

The early 1930's also coincided with a waning and unconvincing era in politics in New Zealand. The periods of oscillation had run in long 20-year waves. In the early 1890's the first strongly liberal-radical government came into power (again after financial stringencies in the eighties) and lasted till 1912. The succeeding more conservative regime was by the early thirties in convulsions and contortions, and the depression did not help it. It was not surprising therefore that the first Labour Government swept into power in 1935 full of promises to cure the depression (which was already receding), and also to provide a "free" system of health, and hospital, medical and social benefits. The latter proved a wonderful horse on which to ride to victory and on many succeeding occasions parties have looked in vain for one as good. Incidentally, this Labour Government did not last the customary 20 years. It went down in defeat to the National party in 1949, after only 14 years, the later post-war years being marred by the signal failure on the part of the ministers and party to refresh themselves with younger successors.

The genesis of social security medicine in New Zealand was thus stimulated by political-party needs and aspirations, though, no doubt, genuine humanitarian motives played a part. If the Labour Government had not introduced it, the National party would have done so. It had a plan on the stocks before it was voted out of office, just as the coalition government in the United Kingdom adumbrated the National Health Service in 1944, though it was left to the Labour Government in 1948 to put it into effect. There was a tide running in the affairs of men, and nothing could stop it; perhaps it may run, as the shad do, even in the U.S.A. On the part of the medical profession there was almost no reaction but alarm and despondency, along with some active attempts at organization to meet the onslaught and mitigate its effects. Perhaps there was a still small voice in its midst to suggest that such a situation might be turned to professional, scientific and educational advantage, and that genuine humanitarian objects might be served. If so, it was inaudible amidst the clamour. Earthquake and whirlwind were the order of the day.

The New Zealand branch of the British Medical Association was recognized as the only professional organization with which the government might negotiate, and the resultant schemes were the outcome of these two forces—the trade union and the political party—reacting on one another. Each side fulfilled its essential role, though each appealed to better feelings and invoked higher motives. Looking back on it, the British Medical Association were remarkably successful in their efforts, for after all they were numerically and politically insignificant, and it is not difficult for the critics and the government to present them to the people as a privileged class fighting to retain their privileges, against the needs and well-being of the populace. How one longs for the day when a democracy will be sufficiently enlightened to approach such a situation constructively and take the opportunity to bring about some real progress.

Much negotiation took place over several years, and the main enactments of the scheme were made in 1941 in the midst of the War, and six years after the Labour Government had come into power.

## III. THE ENACTMENTS UNDER SOCIAL SECURITY WITH AN APPRAISAL OF EACH

The six main divisions of the health benefits planned by the Social Security Act of 1938 will now be described, substantially in the order of their introduction. Each will conclude with comments evaluating their effectiveness.

### 1. MENTAL HOSPITAL TREATMENT (introduced in April 1939)

The system of public mental hospitals throughout the country, and run by the health department, provides free treatment for all who need it. The cost in 1957-58 was £3,270,000 (\$9,160,000); about 4.5 beds per 1000 of population are provided. Only one private mental hospital is available as an alternative. Psychiatric services are available in private practices and in the public hospitals to varying extents.

So far as it goes the service is useful and good, and a boon to patients and their relatives. As in all branches of the public service, however, it has always been difficult to recruit medical staff of adequate quality and numbers. The result is that the range of treatment available is less than it should be, and little time, attention or money is devoted to research. Co-ordination between psychiatry in the public hospitals and that in the mental hospitals is not as complete as it should be.

### 2. MATERNITY BENEFITS (April and November 1939)

In this scheme the mother has all her medical and most of her hospital fees paid by the government. The doctor receives an inclusive fee of £8 8s. (\$23.50) per confinement conducted. Extras are allowed for mileage and consultation. A small consultation fee is allowed, but it applies only to the help obtained from a near-by practitioner. Most confinements take place in public hospitals at no cost to the patient, and when a private maternity hospital is chosen, the patient pays the difference between full fees and the partial one paid by the service.

For the mother (and father) the virtual abolition of financial anxiety at the time of childbirth is an immense boon, and has contributed notably, in my opinion, to the rising birth rate since World War II. To realize the human betterment achieved, one has only to think of the fear-ridden times of the 1930's with the depression, and the scanty one-and-two-child family.

The general practitioner clings to his maternity work, but feels that there is a good deal of slavery in it if he carries out his antenatal observation conscientiously. A steady agitation goes on to get this part of the fee raised. Moreover, there is a great deal of paper work, these attendances having to be recorded and certified by the patient.

A good and freely available service with beneficent human results has been achieved. No noticeable stimulus towards scientific or professional progress has come from the institution of this benefit as such. As it happens, however, obstetrics and gynaecology is the field where easily the best provision for post-graduate teaching and research has been made in New Zealand. But that stems in no way from this benefit but from public concern and the devoted labours, led largely by the women's organizations, who have endowed both the undergraduate chair in obstetrics and gynaecology in Dunedin and a special postgraduate one in Auckland.

### 3. HOSPITAL BENEFITS (July 1939)

Under this benefit every person, Maori or white, has a right to free treatment in the public hospitals, which have always been the chief venue for hospital treatment in the country. Private hospitals or nursing homes were not abolished as a result of the benefit, and in the year 1957-58 the position throughout the country (excluding mental hospitals) was that shown in Table II.

TABLE II.—HOSPITAL PROVISION IN NEW ZEALAND

	Public hospitals		Private hospitals		Total	
	No. of beds	No. per 1000 pop'n	No. of beds	No. per 1000 pop'n	No. of beds	No. per 1000 pop'n
General.....	11,547	5.1	2153	1.0	13,700	6.1
Maternity....	2398	1.1	373	0.1	2771	1.2
Tuberculosis..	1326	0.6			1326	0.6
Totals.....	15,271	6.8	2526	1.1	17,797	7.9

Thus private hospitals provide 14% of the total available beds.

From the founding of the first hospital in New Zealand about 1840, the Maori and white were to be treated as equals, and this has remained so to this day: there never has been any distinction of race or social class within the public hospitals, nor does it seem politically and socially possible in this country that there ever will be. Herein lies the first great and unique character of the New Zealand hospitals: there are no "pay-beds" or "private wings" where doctors can earn fees from their patients. This must still be done, as always, in private hospitals and homes with all the attendant difficulties relating to size and scope and equipment. For an equalitarian society like New Zealand the ideal would seem to be to make the public hospitals good enough for all classes of people, and this has come remarkably near to achievement. The chief lack is proper arrangements

for the specialist side of the profession, both inside and outside the hospitals. This will be dealt with in Section IV.

In 1939 came the end of the "honorary" system, a hangover from the already outmoded London system whereby the specialists earned their living from fees in private hospitals and practice, and attended the "sick poor" gratuitously in the public hospitals as a service and for the prestige that such service conferred. In fact in New Zealand the circumstances of the hospitals (already mentioned), and of practice and of the specialists themselves, never even remotely measured up to the London ones, and the remarkable thing was that the system ever worked at all. However, the part-time physicians and surgeons in the public hospitals in 1939 were put on to part-time salaries, based on so many tenths (each tenth represented a half-day session per week) of a full-timer's salary at equal status. A few (but very few in the clinical fields) full-time appointments have been made, and the bulk of ordinary internal medicine and surgery and specialist work is done by part-time staff who are engaged also outside in private practice.

The hospitals in 1939 were administered by publicly elected boards, some 40-odd in number and greatly differing in the populations served by each, spread somewhat irregularly over the country. They derived their finances in roughly equal proportions from rates levied by the corresponding local authorities and from the consolidated fund of the central government. In the intervening years certain important changes have taken place so that all the money, called hospital "grants", is now provided by the government to the extent of the £15,000,000 (\$42,000,000) in 1957-58, mentioned elsewhere. An additional £5,000,000 (\$14,000,000) per annum comes to the hospitals under the heading of "hospital benefits" from the social security fund, so that £20,000,000 (\$56,000,000) in all is spent by the hospitals. The abolition of the local rates has diminished the importance of the hospital boards, though they are still elected locally as before, their total number being a little reduced by certain amalgamations of smaller boards. Parallel with this, the importance of the hospitals division of the health department in Wellington has increased, so that for all practical purposes the hospitals are a section of the government department of health, and managed from Wellington. For some years the alternative view of establishing them under four or six regional authorities akin to the pattern of the university authorities in New Zealand, with global budgets and triennial or quinquennial grants, found favour in certain quarters, including a committee of enquiry some five years back, but the tide turned in the direction of departmental control, and this is now complete.

With hospital services free to all, and on the whole fair to good in quality and quantity, it may be asked how the private hospitals survive at all. They provide 14% of the beds available in the country and though limited in variety and scope, and sometimes of inadequate quality in terms of buildings, they do good work. Old ones have been improved, and a few new ones built. They clearly satisfy a need for prompt and intimate service, and of course are an essential basis for the continuation of private practice, particularly in surgery. At present they seem under no particular threat of extinction.

#### EVALUATION OF HOSPITAL BENEFITS

From the people's point of view the right to "free" hospital treatment, of whatever necessary duration or complexity, is a great boon and abolishes much anxiety, particularly when it comes to the medical and surgical catastrophes. For the lesser matters where prompt and personal service are of the essence, remarkably free use of the private hospitals is voluntarily made.

For overseas visitors, the public hospitals charge an overall fee of £4 (\$11.20) a day, and that includes all medical and specialist services as well as nursing, and accommodation. Blood transfusion for example is freely included in the charge. People from the U.S.A. warmly approve this (while often deplored to their medical hosts the low professional fees obtaining), but visitors from the United Kingdom, who get all treatment in hospitals free, are inclined to resent the charge.

The frank provision of the necessary money from public funds, a feature of New Zealand hospitals from the beginning, avoiding recourse as it does to charity and lotteries, is a good thing.

Hospital management by a central government department is more open to question. No doubt it deals economically with the problems, but the remote control by departmental officials withdraws something that local pride and interest can give. The humane and scientific foundations of hospital work also seem to me ill-adapted to departmental control. Like the universities, they merit *ad hoc* authorities made up of men more calculated to understand the underlying ideas and motives. Very little has been done to adjust the control of those hospitals which have major medical teaching duties, either undergraduate or postgraduate, to their special tasks. In fact the necessary co-operation between hospital and university, involving separate government departments for finance, has not always been forthcoming and serious breaches of mutual confidence have been too frequent.

The departmental control of salaries of medical men—full-time and part-time—in hospital service, is a severely limiting factor in many ways. The tie is to other branches of the civil service rather than to overseas Commonwealth standards, for New Zealand must fish in the Commonwealth pool for its professional staff. As in the parallel case of the universities, this is a serious handicap, which has resisted all attempts hitherto at alleviation. There is a constant difficulty in attracting good men, and a constant leakage to Australia and Britain of our better men. It has been truly said that New Zealand's chief export is not beef or butter or timber but brains, from the days of Rutherford and Maclaurin of the Massachusetts Institute of Technology to the present time.

The tying of medical salaries and conditions (and those of certain other professions as well, such as architecture and engineering) to the public service is most acutely felt in the department of health itself. Here all the appointments are made by the public service commission, and highly important medical officers, the director-general of health and the directors of divisions such as hospitals and clinical services, are involved. Though their responsibilities and importance are amongst the highest in the land their salaries are relatively poor, and it has always been difficult to attract and retain men of the requisite calibre. At times this difficulty seems to have been realized by financial officers of the government and even by an occasional Minister, but nothing has been achieved

to overcome it. Indeed one of the reasons for proposing effective regional hospital authorities and a national hospitals commission was the hope of affording a means of escape from public service restrictions. However, the pendulum swung, or was pushed, away from this conception, and the department is now in almost total control, with little or no prospect of extricating itself from its limiting conditions. There is equally little prospect that the profession or the hospitals will escape from the limitations of this type of departmental control.

The outlook, therefore, for the general well-being of the hospitals is at present not good. It is part of the equalitarian outlook of the country, and will not be improved until British Commonwealth standards are accepted by all concerned for professional status and conditions. Happily, however, these standards are becoming more widely known through the greatly increased interchange of high-ranking medical men and public servants throughout the Commonwealth and indeed throughout the world.

#### 4. PHARMACEUTICAL BENEFITS (May 1941)

This scheme has run smoothly from the outset, steadily increasing in annual cost up to £5,100,000 (\$14,280,000) in 1958-9. All dispensing chemists are free to enter the service, which is now somewhat competitive and might benefit by some regulation, and they seem to have done well, though no doubt a great deal of extra paper-work is involved both for them and for the doctors. The patient merely hands over his prescription from the doctor and is charged nothing for what is allowed "free on social security". The free list is a generous schedule, constantly under revision, and includes a comprehensive range of modern remedies. The more costly ones are the subject of more circuitous approaches (through hospital officers or health department), as a safeguard. Cortisone and fluorohydrocortisone, and some of the costlier antibiotics come under this heading. A number of checks on prescribing became necessary to keep down the bill, and these have been accepted by the doctors in good part. There is no doubt that "free medicine" has a great appeal for both public and politician—Australia made this its first offering.

A. W. S. Thompson (1958), director of clinical services in the department in Wellington, is of the opinion that the drug bill in New Zealand is not excessive, in view of the (properly) generous range allowed. The total of 5.5 prescriptions (equalling three separate forms) per person per year is, he thinks, not out of the way, though possibly capable of reduction to four by careful work on the part of the doctor.

The drug companies, mostly from overseas, have found New Zealand a fair and wholesome pasturage and seem able and willing to push their wares successfully. There has been little noticeable tendency towards greater local manufacture.

The pharmacists themselves are asking for an improvement on what has been perhaps the world's poorest system of training, and now a two-year full-time course, under the department of education is obligatory in addition to apprenticeship. This change was desirable and inevitable, but cannot be credited to the benefit scheme—the latter being merely a "benefit". No money was set aside specifically from

the scheme towards research in pharmacology. This and teaching have been tacitly left to other sources.

5. GENERAL MEDICAL BENEFITS  
(GENERAL PRACTITIONER SERVICE)  
(November 1941)

The protracted and rather bitter negotiations (or marches and counter-marches) between the government and the New Zealand branch of the British Medical Association from 1938 until 1941, when this benefit was finally introduced, may at this stage be passed over briefly. It was the chief battle in the war, and in my opinion was waged at the level of politician working for essentially political-party ends, and trade unionist fighting for his rights and privileges. Pious protestations of nobler motives were uttered, and no doubt felt, from both sides from time to time, but the more-enduring humanitarian and scientific considerations were, to say the least, obscured by the dusty conflict. Officials of the health department, as distinct from the politicians, stoutly denied throughout it all any share in the paternity of the scheme.

Two pieces of humour (each with considerable truth-content) might be worth preserving from this period—"bees in amber"—one for each side. The B.M.A. declined a fee of 5s. (\$0.70) but accepted one of 7s. 6d. (\$1.05)—a rise of 30 pence—and were therefore said to have "sold their soul for 30 pieces of copper". The stoutest B.M.A. spokesman, on the other hand, at the height of the conflict described it thus: "The government was in the position of a broker who had sold to the public (and taken the money) something he did not possess, had made no arrangements to obtain, and was unable to deliver. The position now is that the broker has confessed his inability to fulfil his contract and says to his clientele, 'If you can get this for yourselves I will pay'."

The government tackled the general practitioner first and foremost in New Zealand, and to this day the specialist and consultant have been virtually ignored. In the United Kingdom by contrast, the hospitals and the consultants received the full treatment from the outset, and this represented a colossal undertaking. The general practitioners were dealt with also, but having largely been under the panel system for many years before, the impact was felt less by them and by the public.

The first proposal of a capitation contract—the doctor to receive 15s. per annum per person on his list—was taken up by a few doctors only, and the later fee for service plan was agreed to, and subsequently modified and made available in two forms, the doctor electing which way he will work. The essence of it is a benefit of 7s. 6d. (\$1.05) per service, or 12s. 6d. (\$1.75) for a night, holiday, or Sunday service, to help the patient to pay the doctor's bill.

In the *refund* system the doctor sends out bills in the ordinary way for what he considers a fair fee, and the patient obtains refunds from the post office for each service noted on the received account. There is no government interference or limit on what the doctor may charge. About 25% of the doctors use this method. Most are specialists, and by it the patient receives the only help he can get with his specialist's bill. It is payable for each attendance in the office or consulting room, or visit in private hospital. Of course if he

receives his specialist attention in a public hospital it costs him nothing.

The *schedule* system is more commonly used by general practitioners. They record on daily schedules all their attendances on patients and submit these fortnightly or monthly to the department for payment at 7s. 6d. (\$1.05) per service. No patients' signatures are required; about 1% are checked by postal enquiry by the department as a safeguard. The doctor is free to charge extra to the patient and collects from him direct—5s. (\$0.70) in the office and 7s. 6d. (\$1.05) in the patient's home, being the extra fees recommended by the B.M.A. In practice 3s. to 5s. (\$0.40-\$0.70) is usually charged; sometimes nothing extra is asked for. It is an extraordinary thing that the doctor's fee in New Zealand has been 10s. 6d. (\$1.40) from time immemorial and that neither it nor the benefit of 7s. 6d. (\$1.05) has been altered to this day.

These systems have the advantages over a capitation one (never favoured by the doctors in New Zealand) of freedom from contract between patient and doctor; of free choice on both sides; of discouragement from frivolous and unnecessary calls by the patient; and of increasing earnings, as at times of epidemics, pari passu with work done. The government intervenes very little, and then only as a check.

The refund system carries a proportion of bad debts for the doctor: the patient has to use his received bill as a claim, and it is often hard for the patient to find the cash to pay the full amount, even if he knows he is to get a refund. It is rightly said that there is little wrong with the refund system so long as it is not compulsory.

The schedule system is under criticism by some doctors as being unconducive to the best patient-doctor relations, and in laying undue emphasis on its financial aspects. It also does nothing to foster the educational and preventive aspects of practice. From the government's (and the taxpayer's) viewpoint the system is a "bottomless pit" with no check on the total cost. The doctor can abuse it by over-visiting and over-counting attentions made. The inescapable tendency to pump up small practices has been demonstrated graphically by Thompson<sup>4</sup> (1959). Though the population per doctor throughout the country fell from 1477 in 1952 to 1289 in 1957, the average payment to the doctor using the schedule system rose from £2173 to £2448 (\$5084 to \$6854). In the case of doctors using the refund system there was no change in the average payment.

The attraction that these somewhat freewheeling arrangements have for doctors has resulted in a steady influx of doctors from other parts of the shrinking Commonwealth ever since the war. Incidentally, Australia has had only half this rate (per million of population) of medical immigration in spite of attractive, though dissimilar, conditions in practice. How long this influx and this inflation of practices and claims can be borne by the country remains to be seen, but it is implicit in the scheme, as was expected from the beginning by detached observers. The miracle is that abuse by patient and by doctor has all along been relatively small.

The disciplinary committees do not seem overworked. A. W. S. Thompson<sup>4</sup> (1959) compares our figure of 4.3 visits by or to doctors per head of population per annum favourably with that in the United Kingdom

of 5, and in the U.S.A., where medical charges are high, of 3.7.

From the patient's point of view the general medical benefit has been fully accepted, and is likely to stay in one form or another. The doctor has found it easy and profitable, and many young doctors were enticed too soon into practice by it, rapidly attaining incomes considerably in excess of leading senior consultants. Now, however, the law of supply and demand is catching up, and things are getting tighter. The government has so far not felt obliged to balk at the rising cost, but the spectator is entitled to make these criticisms, after admitting the many good points in the system:

1. There is no question that general medical services could be provided as well as they are now, by fewer doctors and at less cost—perhaps at much less cost.

2. There has been no specific impetus towards improved methods, such as group practice; the incorporation of preventive medicine; postgraduate study; and clinical research. Some of these things have come about in varying degree, but they have done so through other agencies.

3. No official effort has been made to demarcate the field between general practice on the one hand, and hospitals and specialist practice on the other. Some work properly paid for, and which should be done, in general practice is passed on to the hospitals, which are often ill-equipped and ill-staffed to cope with it. Similarly specialists do a good deal that should be done by general practitioners.

4. Rationalization of general practice, particularly as to its costs, is likely to be distasteful to the practitioners and difficult for the government. But if money is in fact being wasted in this sphere it should be reclaimed and used for purposes such as specialist practice and the furtherance of research and teaching.

5. No attempt has been made to provide a superannuation scheme for general practitioners. Under modern conditions of inflation and high taxes this is a clamant need.

In concluding this section it should be stated that the New Zealand practitioner is by and large a very good doctor. He often has a substantial training behind him, is resourceful and covers a wide range of work, particularly in the smaller towns and country districts. He has free access to laboratory, x-ray and other aids in his practice. He has continued to retain his freedom, very largely, from administrative and government trammels, and makes, for New Zealand, a fair to good living. The circumstances which have made him thus, however, threaten to bring too many to the spot, and a vicious circle starts, in which all suffer, chiefly the taxpayer who has to keep on tossing his coins into the bottomless fountain.

#### 6. SUPPLEMENTARY BENEFITS

Radiological, laboratory and physiotherapy services are available on a free basis at the public hospitals to every citizen on recommendation by a doctor. They can also be obtained privately, the respective benefits covering varying proportions of the cost charged to the patient. The ready availability of these services constitutes a great enrichment of the work of the doctor—whether practitioner or specialist—and are a boon to the patient, who can gain the advantages of prompt private and personal services at considerably less than normal rates. The practitioner in these branches also

TABLE III.—SUPPLEMENTARY BENEFITS

Year of introduction	Nature	Cost in 1957-58	
		in £	in \$
1941	Radiological	470,000	1,320,000
1942	Physiotherapy	60,000	170,000
1944	District nursing	180,000	510,000
1946	Laboratory	410,000	1,150,000
1947	Dental	930,000	2,600,000
	Artificial aids—limbs, etc.	80,000	220,000
	Other	150,000	420,000
	Total	2,280,000	6,390,000

has the choice of private or public practice, or often a mixture of both.

Radiological benefits apply to diagnostic work only, therapy being virtually limited to the public hospitals. The benefit in private practice covers about half the total fee agreed upon between government and radiologists. This fee has remained unchanged since the beginning in 1942 and is about half that obtaining in the United Kingdom and Australia; the benefit therefore representing about one-quarter of the fees current in these countries. Practice has become competitive and the fee prescribed allows little scope for the exploitation of special skills or the taking of special trouble. The effect is towards mediocrity. Burdensome paper work in connection with claims may be lessened in the future. In private hospitals without x-ray equipment the benefit assists in the cost of x-ray services by portable plant.

Laboratory benefits cover the whole fee, and therefore cost the patient nothing even when a private pathologist is invoked. Even blood transfusions are free in private practice, the supplies coming from well-run departments in the public hospitals. The fees that the government allows to be charged are adequate, though small by comparison with those in the U.S.A.; the laboratories are well-staffed and equipped. Their steady increase in number attests to the calls made on them, and the extent of the load that is being taken from the public hospital laboratories. Claiming is not burdensome. A few pathologists divide their time between public hospital service and private practice.

In the case of physiotherapy the benefit is 3.5s. (about \$0.50) per treatment, unchanged since the inception. Those applying the benefit (almost all those in practice) are obliged to limit the amount of additional fee charged. Originally this was 3.5s. (\$0.50) but it has gradually risen to 8s. (\$1.12), so that the benefit now meets 3.5s. (\$0.50) out of a total of 11s. (\$1.55). The demand for private treatment is considerable; the equipment provided (minima are laid down) is good, and there is a limitation on the number of claims that can be made per hour of work. The school of physiotherapy is located in Dunedin alongside the medical school. It gives a concentrated three-year course, and its trainees (about 40 per annum) enjoy reciprocity with the United Kingdom, Canada, South Africa and parts of Australia.

*District nursing services*, usually operating from a base in a public hospital, have proved to be of great assistance to general practitioners and to specialists, for example in postoperative surgical dressings and general-nursing care. Such a service is economical, sparing hospital beds and other more costly attentions.

*Dental benefits (1947).*—The government already had a unique and extensive school dental nurse service at work doing fillings and general conservative procedures in special clinics in the primary schools, and intended to apply the benefit then proposed for adolescents up to 16 years of age by means of a salaried service. The limitation to age 16 was deliberately arrived at by joint decision of government and profession as being the maximum that could be undertaken by the existing professional personnel.

As an interim measure a fee-for-service scheme with private dental practitioners was allowed alternatively. Difficulty in recruiting dentists for the full-time service, and the popularity of the fee-for-service scheme have led to the rapid expansion of the latter, so that now some 75% of all practising dentists in the country have contracted to undertake some portion of this task, and altogether handle over 90% of the patients enrolled for it. They also assist with some of the children in the upper classes of the primary schools.

This measure is of value to health in a country where dental caries, particularly at the adolescent period, is still of very general incidence. To the father of a growing family the financial relief is a considerable one. Most dentists participate in varying degrees and are moderately satisfied with the emolument paid in full by the government, the patient paying nothing extra. All conservative dentistry is included, the contract with the government being to keep the patient dentally fit up to his 16th birthday. Each filling is paid for at agreed rates. The paper work is a little irksome to the dentist.

Again this service pays no attention to teaching and research, which are left to other avenues for support. It is a project in service alone. To those who hope for a total health service from the government, the limitation of these dental services to the age of 16 must represent a considerable failing short. However, it costs nearly £1,000,000 (\$2,800,000) per annum as it is. It may fairly be said to be applied where it is most needed, if it must remain limited.

Darenthrin produces a significant fall in blood pressure only in the upright position. Full therapeutic benefit is not obtained until it is associated with a natriuretic agent such as chlorothiazide, and hydralazine. Objectionable features such as an offensive taste and occasionally the need to take large doses (up to 15 tablets a day) are not too severe. Side effects are similar to those of other hypotensive drugs. Guanethidine produced by Ciba has a slow onset of action and prolonged duration. It was given to 12 hypertensive patients for an average of 6.3 weeks. It also produces best results when associated with hydralazine and chlorothiazide. Side effects include weakness, fatigue, diarrhoea and amblyopia. Dr. Lewis (London) pointed out that weakness of the legs is also a frequent complaint of patients taking Guanethidine. Dr. Guy Courtois (Hôtel-Dieu, Montreal) reported on a case of thrombosis of the anterior spinal artery in a 66-year-old man who had previously suffered from various forms of thrombosis and presented evidence of arteriosclerosis in all palpable vessels. During the investigation of a round mass in the left paravertebral pulmonary field, aortography was performed by means of a catheter introduced in the right femoral artery. Immediately after the procedure, the patient developed paralysis of the left leg followed the next day by flaccid paralysis of both legs, absence of reflexes, urinary incontinence, and loss of sensitivity to pain and temperature only. A diagnosis of myelomalacia from ischaemia of the area supplied by the anterior spinal artery (probably from thrombosis) was made. However, the films of the aortogram were ruined and the patient, who died sometime later, did not come to autopsy. In describing the surgical treatment of portal hypertension, Dr. J. P. Cholette explained how the failure of Vidal's pioneer work had delayed progress in this field for many years. Of the patients treated at Hôtel-Dieu of Montreal, ten porto-caval anastomoses (all termino-lateral) resulted in three deaths. All patients are given a preoperative spleno-portogram and although no clinical complications have ever been noted, operation often reveals local necrosis at the site of injection. Surgical interference is indicated in some cases of irreversible ascites and oesophageal varices in spite of the risk of hepatic coma. At the present stage of the technique, the problem now rests on the survival offered by surgery. Dr. R. Demers of Hôtel-Dieu (Montreal) gave a detailed presentation of eight cases of Dupuytren's contracture in the same family, tracing the lesion back to four generations. He sees a certain relationship between this and the shoulder-hand syndrome and believes that the lesion results from a hereditary familial trait which is hard to identify as it does not manifest itself until middle age, may be transmitted by women without affecting them, and is not a crippling affection and therefore may go either unnoticed or without giving rise to any complaint for several years.

In a series of 226 patients treated at Notre-Dame Hospital (Montreal) for a period of six months to 10 years with steroids, the incidence of osteoporosis and pathological fractures was studied and presented by Dr. J. Gascon. No less than 26 patients (11.5%) suffered one or more episodes of pathological fracture the majority of which took the form of crushed vertebral bodies. It is of interest to note that 24 of these were women most of whom were past the menopause. It seems that an anabolic diet is not essential to cure and recovery, the main form of treatment being discontinuation of steroid therapy. As far as could be determined, any steroid used in the treatment of rheumatoid arthritis can become the source of this complication. A preliminary study on the effect of high doses of steroids in the treatment of active rheumatic carditis was presented by Dr. Guy Germain of Notre-Dame Hospital (Montreal). The age of the 18 patients with rheumatic carditis ranged between 6 and 22 years. Prednisone was administered at a dosage of 120 to 140 mg. a day. The signs of activity in most cases subsided within seven days except for two patients in their twenties in whom the carditis persisted for a longer period of time.

## MEDICAL MEETINGS

### THE ROYAL COLLEGE OF PHYSICIANS AND SURGEONS OF CANADA

[Continuing the report of the Twenty-Ninth Annual Meeting of The Royal College of Physicians and Surgeons of Canada, held in Montreal on January 21, 22 and 23, we present below an outline of the sessions of the Division of Medicine and a report of the Convocation. For an account of the sessions of the Division of Surgery, see page 384 of the issue of February 13.—ED.]

#### DIVISION OF MEDICINE

Evaluation of two new hypotensive agents Darenthrin and Guanethidine was presented by Dr. Jacques Genest (Hôtel-Dieu, Montreal). Darenthrin, a synthetic substance obtained at the Burroughs Wellcome Laboratories, has little or no effect on the parasympathetic system and is only partially absorbed from the gastro-intestinal tract. It was administered to 41 hypertensive patients during an average of 16 weeks. Two of them died suddenly, presumably of myocardial infarction. When used by itself,

Among the side effects bradycardia and a slight and transient rise in blood pressure were noted. Oral potassium was given as a prophylaxis. The authors claim that such treatment is effective in the exudative phase of the disease but does not alter the proliferative phase. Dr. Lanthier of Notre-Dame Hospital (Montreal) presented a case of panhypopituitarism with hyponatraemia in which excretion was maintained unchanged in spite of a deliberately reduced intake of sodium. When the patient was given 5 mg. of prednisone and 60 mg. of desiccated thyroid extract, a reduced sodium intake was followed by a diminution in sodium and water excretion. Cortisone did not modify the effect produced by injection of 5 m.u. of pitressin. A case of renal tubular acidosis was described by Dr. E. Piette of Notre-Dame Hospital (Montreal), in which nephrocalcinosis was present together with hypopotassemia and osteomalacia. One brother and one sister of the patient had also suffered from renal stones. Except for Dr. Genest's presentation, all the other papers on this first session were given in French with the benefit of simultaneous translation.

The annual award in medicine this year was given to Dr. J. C. Sinott of Charlottetown, P.E.I., for his work on "The control of pulmonary ventilation in physiological hyperpnoea". As a result of his experimental work, Dr. Sinott has come to the conclusion that sensitivity of the respiratory centre to carbon dioxide diminishes as the degree of muscular exercise increases, in both normal and diseased subjects. This finding is in contrast to that in resting subjects. It appears therefore that breathing is determined by the respiratory drive of the individual and that other factors than  $\text{CO}_2$  influence the respiratory centre to produce the hyperpnoea of exercise. The theory of a drop in blood pH taking place in muscular exercise is untenable as it has been found that in muscular exercise the blood of subjects who hyperventilate is likely to be more alkaline than at rest. A neural factor must be postulated as a means of explaining the mechanism of control of the respiratory centre, but it has not yet been identified.

The preoperative and postoperative evaluation of circulatory capacity in mitral stenosis was presented by Dr. B. J. Sproule of the cardio-pulmonary unit, University of Alberta Hospital (Edmonton). The maximal oxygen intake was about half the normal expected values in 15 male patients with mitral stenosis. Cardiac output during exercise was only double the resting value whereas under comparable circumstances it was four times that value in normal subjects. Valvulotomy in seven patients permitted them to increase cardiac output and stroke volume in response to exercise and usually caused a small but definite change towards normal in the patient's haemodynamic response to exercise. Drs. D. J. MacIntosh and J. C. Sinnott of the Montreal General Hospital have devised a method of predicting the functional capacity of the cardiovascular system from a single study during moderate exercise. Ten patients suffering from mitral stenosis were exercised on a treadmill to the point of exhaustion while oxygen consumption and minute ventilation were measured by standard techniques. Dr. R. E. Rossall of the University of Alberta Hospital (Edmonton) presented a combined study of the radiological and pathological changes in the lung in mitral disease. It appears that the presence and intensity of the basal lines seen on radiographs of the lung in mitral valve disease correlate with the mean left auricular pressure in each patient. These lines are present in a large number of patients with mitral stenosis and although they may vary and even disappear spontaneously in a few instances, they will be cleared up by valvotomy in a greater number of cases. Fibrosis and haemosiderin, when present, do not appear to be significant factors in the development of these lines. The mechanism, prognosis and treatment of shock following myocardial infarction were discussed by Dr. R. W. Gunton of the Toronto General Hospital. True cardiogenic shock in myocardial infarction, characterized by sweating, pallor, cool extremities, hypotension, collapsed peripheral veins, oliguria, faint heart sound and occasionally stupor,

must be differentiated from benign generalized vasodilatation also found in this affection. In true shock, cardiac output is quite reduced and peripheral resistance is increased, whereas in benign generalized vasodilatation, peripheral resistance is relatively reduced, and interferes with central venous return but cardiac output is relatively unimpaired. The therapeutic consequences of this difference were outlined and the paper gave rise to a fair amount of comment. The problem presented by prolonged anticoagulant therapy after myocardial infarction was discussed by Dr. K. W. G. Brown of the Toronto General Hospital. A study was carried out on 50 patients using either 15 mg. tablets (high dosage) or 1 mg. tablets (low dosage) of dicoumarol. The impression derived is that there was an apparent improvement during the early phase of the experiment but if therapy was continued long enough there was no statistically significant difference between the high dosage and the low dosage (which was practically equivalent to no therapy) in the mortality rate of the patient. The vascular abnormality which may be present in diabetes mellitus was discussed in a paper entitled "Studies in vascular disease" by Dr. D. L. Wilson of Kingston, Ontario. After studying the epinephrine responses on the plethysmograph, he postulated that there appeared to be a disorder of the small vessels in diabetics since the influence of desoxycorticosterone inhibited this response in normal subjects and enhanced it in diabetic patients. A preliminary report on a very extensive study of a hereditary cardiomyopathy in a Quebec family was presented by the senior author, Dr. P. Paré of the Royal Victoria Hospital (Montreal). All these patients showed an unusually high incidence of heart disease resulting in early and often sudden death. Dyspnoea was the main feature, soon followed by weakness. Clinical, electrocardiographic and fluoroscopic examinations were carried out on 69 members of this family. An unusual feature of all patients on whom the determination was carried out is a very low serum cholesterol; the reason for this abnormality has never been found. It appears that the disease is hereditary and transmitted as a non sex-linked dominant gene. The main pathological feature is cardiac hypertrophy and fibrosis. Dr. S. C. Lenkei presented a paper on the use of dye dilution curves in congenital heart disease. During right heart catheterization patients have been studied with dye injections in the left pulmonary artery, right ventricle and right atrium. Dye was also injected into the left side of the heart, left atrium and left ventricle after passing the catheters through the defect in the atrial septum. Interpretation of the curves obtained for diagnostic purposes was discussed.

Dr. I. Holmes of Alberta University Hospital (Edmonton) presented his evaluation of the cobalt 60 vitamin  $B_{12}$  absorption test with a series of over 150 patients including cases of pernicious anaemia, neurological syndromes, malabsorption syndromes, other haematological conditions, some miscellaneous diseases and a group of controls. The range of normal values of excretion was determined and the diagnostic accuracy of the test evaluated. It was pointed out in the discussion period that impaired renal function as revealed by a high blood urea nitrogen may result in false positive results unless the urine collection is extended from 24 to 48 hours. Dr. J. L. Hutchison of Montreal General Hospital presented a case report of megaloblastic anaemia due to anticonvulsant therapy. This paper was published in *Canad. M. A. J.* of February 13 (p. 365). The coagulation abnormalities in acute and sub-acute renal failure were investigated by a group of physicians of the Royal Victoria Hospital of Montreal and the results presented by Dr. A. Kendall. Serial coagulation studies were carried out on 45 patients with acute or subacute oliguric renal failure. Platelet numbers and/or function were found to be depressed in over half of the cases. The majority of patients had prolongation of the Quick prothrombin time, related in a number of instances to a deficiency of a known factor but in others the deficiency could not be ascribed to any known factor. Dr. W. F. Connell of the Kingston General Hospital reported on intravenous heparin and its role in

the management of acute thromboembolic disease. He provided convincing evidence of the vital part which heparin may play in the therapy of incipient coronary or cerebral thrombosis and also stressed the value of this treatment in acute venous thrombosis. Dr. Connell believes that intravenous heparin is far from being the highly dangerous drug which it is considered to be by many physicians who are unfamiliar with its use. Further studies on the management of hypercholesterolemia with sulfated polymannuronides was carried out by a group of research workers of the University of British Columbia and Shaughnessy Hospital of Vancouver. Reporting on further studies on Paritol-C, Dr. H. W. McIntosh stated that Paritol-M proved an extremely rapid and potent depressor of elevated serum lipids in all of five cases to which it was administered by intramuscular route. The minimum effective cholesterol depressing dose was found to be 2.5 mg./kg./day. No anticoagulant activity was noticed at this dosage. Dr. C. Ezrin of the Toronto General Hospital read a communication on "new" cells of the human adenohypophysis and the hormones they produce. After describing the various pathological conditions in which any of the five types of cells of this organ can be increased or decreased in number, he suggested that  $\alpha$ -cells produced somatotrophin and prolactin,  $\beta$ -cells secrete corticotrophin and thyrotrophin,  $\delta$ -cells produce gonadotrophin and  $\gamma$ -cells are the partly degranulated form of all the heavily granulated types; their number being an index of secretory activity. The facies of gout was described by Dr. D. Bocking of London, Ont. Patients suffering from gout may show many superficial dilated venules over the malar areas. Although not uncommon in apparently normal individuals, the incidence of these venules in gout is much higher and may frequently aid in establishing a differential diagnosis of gouty arthritis from rheumatoid or degenerative arthritis. In a paper entitled "Observations on carbohydrate metabolism in obesity", read by Dr. W. I. Morse of Dalhousie University (Halifax), the results of studies of oral and intravenous glucose tolerance tests done on obese and normal subjects were presented. These indicated that the tolerance for intravenously administered glucose is normal in obese patients while that of orally administered glucose is impaired. Studies suggested that hepatic glucose production is greater in obese than in normal people.

On Saturday morning members of the College were treated to a masterly lecture in medicine delivered by Dr. K. J. R. Wightman on "The era of rational therapeutics". The recently appointed professor of medicine and head of the department of therapeutics of the University of Toronto displayed his vast experience and his profound knowledge in this field, to the enjoyment and the delight of the audience.

In a paper entitled "Paramyotonia congenita" Dr. D. W. Baxter of the University Hospital (Saskatoon) described the first Canadian family suffering from this syndrome. The father is 37 years old and manifested his first symptoms at the age of three or four years whenever he was exposed to cold. His three daughters all suffer from the same disorder. The physical findings in this family were illustrated by a motion picture. Dr. F. L. McNaughton of the Montreal Neurological Institute gave an evaluation of medical treatment of epilepsy. The lecturer attempted to review not only the results obtained by means of the new drugs which have been introduced since Dilantin was synthesized but also the part played by psychotherapy and social therapy. A preliminary survey of the material gathered in the seizure clinic of the M.N.I. shows that nearly half of the patients can hope to achieve complete seizure control and that moderate control may be obtained in another 20%. In a paper on diagnosis, investigation and treatment of carotid artery disease Dr. H. J. M. Barnett stated that transient ischaemic attacks are not specific to carotid artery disease. The main usefulness of the treatment in these patients appears to be in those with stenosis in the early weeks of symptoms. In those cases where the lesion was attacked surgically, most of the carotids were

still patent three to nine months after operation. Dr. D. J. McCulloch of the Ontario Hospital (Toronto) spoke on sexual norms in a psychiatric population. The mating behaviour of 100 male and 108 female psychiatric outpatients was compared with that of a non-psychiatric population and in a surprising number of cases no greatly significant difference was found. The paper gave rise to a lively discussion. The pulseless syndrome was described by Dr. G. A. Copping of the Montreal General Hospital and illustrated by a most interesting case of ruptured fusiform aneurysm of the congenital type. Attention was drawn to the thickening of the adventitia and intima of the vessel. Dr. John E. Merriman of the cardio-pulmonary laboratory of the University Hospital (Saskatoon) spoke on exercise tolerance tests in patients with rheumatic heart disease. The severity of this ailment can be assessed by serial estimations of cardiac output and its response to exercise, without catheterization, thus avoiding the appreciable hazard to severely ill patients of right and left heart catheterization. A study of 83 cases of cat scratch disease was presented by Dr. W. B. Spalding of the Toronto General Hospital. The disease is a benign infection with subacute lymphadenitis as the chief clinical feature. The causative organism, probably a virus, has not so far been isolated. Seasonal incidence was evident in the present series, most cases occurring in the period from October to January. In spite of definite limitations the skin test is an important confirmatory procedure. No specific treatment is known. Dr. L. L. Kovacs of the Royal Victoria Hospital (Montreal) presented some observations on the mode of action of chlorpropamide in diabetic patients and its clinical application. It appears that the mechanism of action of chlorpropamide is similar to that of tolbutamide and is probably mainly pancreaticotropic. It is effective in controlling the hyperglycæmia of stable diabetics. With a long duration of action a single daily dose of the drug is usually sufficient in such patients.

In a paper entitled "Chronic bronchitis and emphysema" Dr. D. V. Bates of the Royal Victoria Hospital (Montreal) presented a group of patients who might be classified under this heading from the point of view of the relationship between disturbance of function, radiological appearances and findings in the lung at autopsy or thoracotomy. These patients illustrate different aspects of the problem of these chronic respiratory disorders and indicate that it is no longer realistic to classify them under the general terms of chronic bronchitis and emphysema without an attempt at more precise diagnosis and localization. The possible beneficial effect of electrostatically clean air upon bronchial asthma was reported by Dr. N. M. Lefcoe of the Victoria Hospital (London) in a paper entitled "The effect of environmental air cleaning in the course of obstructive pulmonary disease". These results were obtained through the use of a room prepared as a "dust free" environment with recirculated, cleaned air, and controlled lint and dust production from fabrics, furniture and materials in the room. Dr. R. F. P. Cronin of the Montreal General Hospital reported on an obscure pulmonary condition known as "pulmonary alveolar microlithiasis" in an adult man. "The compliance of the respiratory system and its components in health and obesity" was the topic treated by Dr. R. M. Cherniack of the University of Manitoba (Winnipeg). The method used in determining the compliance of the thorax rests on the application of a constant negative pressure around the body, leaving the airway at atmospheric pressure. By simultaneous determination of the change in lung volume, the added pressure, and change in intrathoracic pressure, the compliance of the total respiratory system and that of the lungs can be calculated. The results obtained when this method was applied to 12 obese subjects support the hypothesis that the increased oxygen cost of breathing in obesity is, at least in part, due to the increased mechanical work done to overcome the elastic resistance of the chest wall. Dr. M. Kaye of the Montreal General Hospital presented a study of 12 patients with denser than normal bones who

also suffered from chronic renal failure, in a paper entitled "Osteosclerosis and other bone changes in chronic renal failure". All of them had chronic pyelonephritis with elevated blood urea nitrogen. Other bone changes were also present, namely osteomalacia and/or osteitis fibrosa. The respiratory distress syndrome of prematurity which includes chest retraction, expiratory grunting and decreased air entry on auscultation, persisting beyond one hour of age, was described by Dr. R. Usher of the Montreal General Hospital. It was present in 17% of a series of premature infants and gave a mortality rate of 56% of those affected. It appears that during the period of respiratory distress a massive catabolic process releases potassium, nitrogen, phosphorus and organic acids from the cells in amounts which the premature kidney of these infants fails to excrete. Dr. J. C. Sinclair of Toronto presented certain epidemiological features of the problem of infectious hepatitis as he could study them during the 15 outbreaks of this disease seen in Ontario during the past few years. He also discussed the significance of the positive results with infectious hepatitis sera recently reported by several authors with haemagglutination and latex-fixation tests. The graded response of the experimental skin wheal and its suppression by Largactil and Chlortripolon was discussed by G. H. Toogood of London. In examining the characteristics of the "triple response" of the histamine wheal in dog and man, the author found a linear relationship between mean wheal diameter and log-dose of histamine. Using this relationship, he showed that a number of ataractic drugs not generally conceived as antihistaminic in type are nevertheless useful in treating clinical allergy. This is the case with chlorpromazine. Ordinary doses of oral chlorprophenylpyridamine depress wheal size by 10% in man.

#### CONVOCATION

The 1960 Convocation of the Royal College of Physicians and Surgeons of Canada was the first which had been held in a university setting. Previously, all Convocations had been held in the hotel where the Annual Meeting was itself taking place, but the Committee on Local Arrangements felt that it would now be preferable to hold this ceremony in a university setting. The University of Montreal were only too willing to assist in this scheme, and they provided their excellent auditorium as well as a most efficient and co-operative staff. In the official platform party at Convocation, Monseigneur Irénée Lussier represented the University of Montreal and gave the invocation. Also on the platform representing the American College of Physicians was Dr. Chester Keefer, President-Elect of that body, and Dr. J. Barrett Brown of St. Louis, Vice-President of the American College of Surgeons.

One hundred and eighty-seven new Fellows were presented at Convocation. Dr. F. S. Brien, Vice-President in the Division of Medicine, presented the Medical Fellows to the President, while Dr. Charles Hébert, Vice-President Elect in the Division of Surgery, presented the Surgical Fellows. Dr. Wendell Macleod presented Dr. K. J. R. Wightman, Lecturer in Medicine, to the President for his Diploma as Lecturer, and Dr. Charles Hébert presented Dr. H. Rocke Robertson to receive the surgery diploma. Dr. Douglas Cameron presented Dr. J. C. Sinnott of Charlottetown, as recipient of the Medal in Medicine, and Dr. F. G. Kergin presented Dr. R. B. Salter of Toronto, the Medallist in Surgery. Also in the platform party, in addition to the Council of the College, were the Deans of the Faculties of Medicine of the University of Montreal and McGill University respectively, Dr. Wilbrod Bonin and Dr. Lloyd Stevenson. The Convocation

was followed by a reception at which a *vin d'honneur* in the traditional French Canadian style was served to the guests.

#### PRESIDENTIAL ADDRESS

Dr. John W. Scott, President of the Royal College, addressed the Convocation, and the Fellows and audience were also addressed in French by Dr. J. Roméo Pépin, a retiring member of Council. Dr. Scott's address is reprinted below.

WE ARE privileged on this the Thirtieth Anniversary of the founding of the Royal College of Physicians and Surgeons of Canada in meeting in this magnificent convocation hall of the University of Montreal. May I express to Monseigneur Lussier, Rector of the University, our gratitude. The academic setting of a great university adds to the dignity and graciousness of our College Convocation.

The Thirtieth Anniversary of the founding of our College may be an appropriate time to review with you its functions and to examine the place of the College in the framework of medical education and practice in Canada.

Undergraduate education in all the learned professions, including medicine, is and will, it is hoped, always be a function of the universities of Canada. There is no unanimity of opinion as to what constitutes the ideal curriculum or the best methods of teaching undergraduate medicine. However, in spite of this, one feels that the university faculties of medicine, in the 12 medical schools of Canada, are doing a creditable job in training and graduating, as they do, about 900 doctors each year.

The setting and maintenance of minimal standards for the practice of medicine in Canada is primarily the duty of the provincial licensing bodies, working in conjunction with the Medical Council of Canada. Until the founding of our College 30 years ago, the upgrading of the minimal qualifications for licence to practise medicine was left largely in the hands of the individual doctor. He, through his reading, his increasing experience in practice, his association with his colleagues in professional societies, and his attendance at postgraduate courses, attempted to keep abreast of the newer advances in the complex and dynamic field of medicine.

In the first half of this century, university faculties of medicine in Canada, with a few exceptions, were concerned primarily with undergraduate teaching. They took no responsibility for organized integrated programs of clinical graduate training. In the early part of the century, the recognition of the competence of a Canadian physician or surgeon in a special field of medicine or surgery was determined largely by the judgment of his colleagues in the area in which he was known to them. This means of recognition was not without merit and in many instances the judgment given was sound.

In the twenties a small group of physicians in Canada brought forward to the meetings of the Canadian Medical Association the concept that there should be available in Canada a recognized body for the evaluation of graduate training and competence in medicine and surgery. This was "le premier pas" in the history of the Royal College of Physicians and Surgeons of Canada.

The founders of the College had in mind the pattern of the Royal Colleges of Physicians and Surgeons in

England and Scotland. However, the medical milieu of 20th century Canada was very different from that of 16th and 17th century England and Scotland. It was wisely decided that a Canadian college should concern itself with the direction of graduate training in Canada and the evaluation, by rigid tests, of the competence of the individual on the completion of a prescribed course of training.

With this in mind, the founders requested the Parliament of Canada to pass a bill giving them a charter to set up such a college. This was done in 1929. We are very happy that Dr. Sclater Lewis, archivist of our College, has under preparation a College history which will, we hope, be published this year. Dr. Lewis has had access to the early records and as a former president and charter Fellow has an intimate knowledge of our development. I have had the privilege of reading part of the manuscript. The story is a fascinating one with many interesting sidelights on contemporary medicine and on the colourful vigorous personalities who played a role in the enterprise.

It is not my purpose to burden you with historical details this evening. May I, however, point out to you that from a modest beginning in 1930 with an interest limited to graduate training and examinations in internal medicine, general surgery, obstetrics and gynaecology, the College now assesses training, approves the training hospitals, and conducts examinations in over 20 specialties in the broad fields of medicine and surgery.

There are now over 2000 Fellows of the College. In addition, over 7000 individuals have been certificated by the College in a specialty.

How has this program influenced medical education and practice in our country? I think one can justifiably claim that the guidance given to the recent graduate in planning a program of training leading to Fellowship or Certification in a specialty has been of the greatest value. The Council has always kept in mind that the training programs should not be rigidly laid down with a view to providing conformity to a fixed pattern. The program should and does stimulate depth as well as breadth in the learning process during training. The acceptance of the importance of the basic sciences of medicine has been kept in mind in all areas.

The conduct of searching, written and practical examinations has allowed the College to admit to its Fellowship only those who have attained excellence. We would like to think that the prestige of the Fellowship ranks high in both university and hospital circles in Canada and throughout the Commonwealth as a hallmark of medical attainment.

While the interest of the College is primarily in the field of graduate medical education, one feels that the appointment of Fellows of our College to teaching positions in the clinical departments of Canadian medical schools has improved the standard of undergraduate clinical teaching.

Medical education and the medical care of the patient are inseparable in a teaching hospital. Our College through its representation on and partial support of the Canadian Council on Hospital Accreditation is contributing to the maintenance of improved hospital care in this country.

The initial objectives of our College are being realized in that we have provided an accepted method for the evaluation of graduate training. I am confident

that the quality of medical practice has improved in all areas of Canada as a result of our Fellowship and Certification programs.

One must recognize that, however proficient the doctor may be as a practitioner or teacher, his ethical standards in his dealings with his colleagues and his patients will be among the criteria by which he himself and the profession at large will be judged at the bar of public opinion.

The best defence against criticism of us as individuals or as a group is the recognition by those whom we serve that our chief concern is the best interests of the patient. Francis Peabody expressed this very simply and beautifully 30 years ago by saying that "one of the essential qualities of the physician is an interest in humanity, for the secret of the care of the patient is in caring for the patient."

One hopes that our College will continue to maintain an interest in ethics as well as scholarship and competence as an essential quality in its Fellows.

## GENERAL PRACTICE

### ANNUAL CLINIC DAY, ONTARIO CHAPTER



THE ANNUAL Clinic Day of the Ontario Chapter of the College of General Practice of Canada will be held on April 6 at the Mutual Life Auditorium in Kitchener. The speakers are: Dr. Martin H. Hoffman, Chief of Staff, Jewish General Hospital, Montreal ("Hyperthyroidism" and "Hypothyroidism"); Dr. Joseph N. Dziob, Chief Surgeon, Bethlehem Steel Co., and Associate Professor of Surgery, University of Buffalo ("Ankle trauma" and "Early treatment of hand injuries"); and Dr. R. A. H. Kinch, Professor of Obstetrics and Gynaecology, University of Western Ontario ("Newer concepts in treatment of endometriosis" and "Recent advances in fetal salvage").

A program for the ladies is being arranged.

## LETTERS TO THE EDITOR

### RESUSCITATION METHODS

*To the Editor:*

At the beginning of the New Year I am prompted to write you in reference to the article by Dr. Allen B. Dobkin entitled "Save a Life With a Breath of Air" which appeared in your mid-September 1959 issue (81: 458, 1959). This was a timely historical survey of man's efforts to save the life of his fellow man by means of artificial respiration. It was timely because I am sure that among other things historians will refer to 1959 as the year of the "big blow".

As so often happens in our modern civilization, well-meaning medical research has been caught up in the mad whirl of publicity until it looks as though the

well-dressed person will enter the next decade sporting a plastic breathing tube around his neck like a cravat. Certainly, most of the so-called instrument, dressing and safety supply houses would have, it so. In the meantime, they capitalize on the sale of these and other similar gadgets which ultimately will be doomed to gather dust in cupboards across the nation.

The work on so-called "rescue breathing" is interesting and valuable from the purely scientific and medical standpoint, profitable from the commercial standpoint, but bewildering for the average person. He is now uncertain whether he should use hand or mouth when faced with a respiratory emergency. In my view this confusion of the general public may have tragic consequences. It may result in loss of life while a rescuer is wondering which method of artificial respiration he should use, or summoning the necessary courage to blow into the mouth of a victim who looks repulsive to him. Unfortunately, much of the confusion has been created by our fellow physicians who have concentrated upon scientific rather than practical considerations.

In the electrical industry it has long been recognized that artificial respiration, applied immediately and efficiently, is the only satisfactory method of saving life in accidental electrocution. In a large electrical utility there are on record some 110 cases of successful resuscitation by well-trained line and electrical crews using the Schäfer or Holger-Nielsen methods of manual artificial respiration. These figures do not include a good many victims of apparent drowning among the general public, who owe their lives to our experienced resuscitation crews. It is a bit disconcerting therefore to hear statements from those who are promoting so-called "rescue breathing" that the manual methods of artificial respiration are quite unsatisfactory. To the best of my knowledge there are as yet very few cases on record of resuscitation by mouth-to-mouth breathing.

In our industry some five to six thousand men are well trained in the Schäfer and Holger-Nielsen methods of artificial respiration. These are the front line men—the operators, linesmen, electricians, foresters and others who are working constantly with lethal voltages of electricity. These are the men who recently worked around the clock for several days to restore power to southern Ontario following a severe ice storm. These men know that their lives or those of their fellows may depend upon their ability to perform artificial respiration promptly and efficiently. They practise these two manual methods on each other once a month, and their results in saving lives testify to their efficiency and that of manual artificial respiration.

One cannot deny the soundness of the principle that the rescuer in electrocution, drowning or suffocation should use the method of artificial respiration he knows best and use it at once, continuing uninterrupted until the victim is revived or is dead. A moment's hesitation in deciding what method to use may cost the victim his life. One must also assume that the rescuer will be a layman who has no knowledge of anatomy and physiology. His knowledge of artificial respiration is likely to be purely mechanical; his efficiency developed through constant practice.

Rescue breathing or mouth-to-mouth respiration has been fostered by physicians who find it quite satisfactory under clinical surroundings or when applied to babies or children. Indeed its value under such circum-

stances has been well recognized over the years. The use of this method, however, by lay persons on apparently "dead" or cyanosed people who may have vomited, frothed at the mouth or be otherwise repulsive is quite another matter. Even the best motivated rescuer is likely to have trouble summoning the necessary courage to blow into the mouth of such a victim, and while he delays the victim may die. At a recent inquest of a death in which "rescue breathing" was attempted on a clean young drowning victim the rescuer testified that he had to stop after five or six breaths because he was "sick to his stomach".

The technique of mouth-to-mouth resuscitation is not only repulsive but it cannot be practised on live subjects. Some supply houses now sell bags and mannikins for practice purposes, but these are not the same as a human subject. It is of interest to note that the suppliers are providing sterile disposable papers to cover the mouthpieces in case the practising rescuers do not wish to place their mouth where their friends' mouths have been. This is a normal human reaction which makes rescue breathing impractical for general use.

There are many other technical difficulties which are being minimized by the many powerful promoters of "rescue breathing".

1. The victim's airway is more likely to become obstructed when he is lying on his back.

2. Pulling the jaw forward by placing the thumb between the teeth as advocated may be impossible if the muscles are in spasm and may result in loss of or severe damage to the thumb if the victim is semi-conscious.

3. The continuous deep breathing necessary to resuscitate an adult victim is likely to result in hyperventilation and early exhaustion of the operator.

4. Various types of breathing tubes, airways and masks have been advocated as a substitute for direct mouth-to-mouth contact. Some of these are now being sold by suppliers who use quotations from scripture, II Kings 4: 34-35, and other equally sensational forms of advertising. Commercialization of this kind is deplorable since most medical authorities on "rescue breathing" agree that such gadgets lower efficiency and most of them will never be used.

5. Equipment such as this is likely to be of little use during an emergency since it is most unlikely to be on the spot when needed, unless perhaps we all agree to carry a "breathing tube" on our person as was suggested jokingly in my opening paragraph. The same principle applies to mechanical resuscitators for general use.

6. Insertion of an airway-type breathing tube may prove difficult even for a physician. The many difficulties likely to be encountered by a lay person in passing such a tube are apparent to physicians and need not be elaborated here. Certainly, any lay person would require practice inserting such tubes and this again cannot be done on live subjects.

There is little doubt that under proper conditions and with a well-trained operator, rescue breathing may be a most effective method of artificial respiration and one must not discount its proven value in such circumstances. It may also be of use when a victim cannot be pulled from the water, or when used by a mother or father on their child. For general use, however, there appear to be too many practical difficulties and objections to the method. I am convinced that we

should adopt a more realistic approach and concentrate on better training by the two best recognized manual methods.

This is the attitude which has been faithfully maintained by the Canadian Red Cross and Canadian Army. Unfortunately, the American Red Cross and Army have not been equally conservative and many in Canada have become eager to follow their lead in "the big blow".

My purpose in writing is to point out a few of the practical difficulties in rescue breathing and to put forth a plea for good judgment in this matter by the physicians of Canada. Until there is practical proof of the superiority of other methods, let us teach our fellow Canadians to save lives by proven methods which they can and will use—manual artificial respiration.

DONALD K. GRANT, M.B.E., B.Sc., M.D.  
Director of Medical Services, Hydro-Electric  
Power Commission of Ontario;  
Chairman, C.M.A. Committee on  
Occupational Medicine.  
January 3, 1960.

#### ART AND EYE DISEASE

##### To the Editor:

Concerning your editorial comment "Art and Eye Disease" in which you survey Trevor-Roper's paper in *Proc. Roy. Soc. Med.* (52: 721, 1959), you say that he shows how four major eye diseases have their effects on the artist's rendering. This is true but you have presented a one-sided view of what Trevor-Roper said about astigmatism. You quote the example of El Greco as the classical instance of astigmatism being responsible for the vertical elongation of all his characters. However, you do not quote the evidence given by Trevor-Roper against the hypothesis: "The primary objection has always been securely based on the historical setting of El Greco's work, . . . cogently supported by the modern evidence from x-rays (showing that the elongations were secondarily imposed on the original sketches)". And also mentioned is "the relatively normally shaped faces of the figures in the foreground of the painting of Toledo . . .".

Dealing with artists who elongate their subject and the suggestions that the elongation is due to astigmatism, Trevor-Roper says, "All these suggestions, of course, admit little serious consideration, quite apart from the basic counter-evidence that Modigliani's recumbent nudes and Botticelli's horizontally stretched hands are just as elongated as those that are upright." Also he points out that "Before we start to consider this theory, that the shape of the painted image is distorted in proportion to the artist's astigmatism, we must face the cardinal objection . . . that the artist paints what he sees, and the subject will correspond to the rendering, however much they are both altered by the misshapen eye into a distorted percept within the artist's occipital lobe. In other words that if he sees a flattened or elongated world, the likeness of it that he puts on to the canvas, in order to appear equally flattened or elongated to him, will in fact be depicted with its proper dimensions."

PETER WARNER, M.D., PH.D.  
The Winnipeg General Hospital,  
700 Bannatyne Ave., Winnipeg 3, Man.,  
January 7, 1960.

## WORLD MEDICAL ASSOCIATION

### XIVTH GENERAL ASSEMBLY

The German Medical Association, host of the XIVth General Assembly of the World Medical Association, scheduled to convene in West Berlin, September 15-22, 1960, has extended a cordial invitation to all the doctors of the world to attend this outstanding meeting.

The Bundesärztekammer (German Medical Association) will convene its 1960 Annual Meeting concurrently with the convening of the General Assembly. This is the first time that a host medical association to the World Medical Association has scheduled its own annual meeting in conjunction with the meeting of the World Medical Association. The two associations will meet jointly in their opening and closing plenary sessions.

All activities including the postgraduate teaching film program, exhibits and scientific sessions will be held in one building in order to enable doctors to attend the various sessions associated with each meeting which are of special interest to them.

Additional information including programs and schedules will be available on or about March 1 at the W.M.A. Headquarters Secretariat. Requests should be addressed to: The World Medical Association, 10 Columbus Circle, New York 19, N.Y.

### CHANGES IN W.M.A. ADMINISTRATION AND FINANCING

An excerpt from the W.M.A. Secretary-General's January letter runs as follows:

On December 9 and 10, 1959, the Executive Board of the Planning and Finance Committee of W.M.A. met at the Secretariat for the purpose of reorganizing its administrative procedure in accordance with the decisions of the XIIth and XIIIth General Assemblies to assume all financial and administrative responsibility in the functioning of the World Medical Association.

Historically, the responsibility for providing the Association with the Headquarters Secretariat and a periodical was, from 1948 to 1959, the special financial project of the United States Committee, Inc. However, the Assembly had directed that Council and the Planning and Finance Committee make the necessary arrangements for the transfer of these two activities as the full responsibility of the World Medical Association, effective January 1, 1960.

Under the direction of the Council, the Secretariat prepared a complete ownership and cost inventory of the furniture, fixtures and expendable supplies in the Headquarters Secretariat, and a schedule of annual salaries of all personnel employed since the Secretariat was founded, and made available to the Executive Committee the Secretariat personnel plan, job analysis and Secretariat Manual, and all the vouchers, account books and annual audit records, kept since 1948.

The Executive Board, comprised of Dr. T. C. Routley (Canada), Dr. Gunnar Gundersen and Dr. E. S. Hamilton (U.S.A.), reviewed the financial and administrative procedures and commitments of the Headquarters Secretariat. A budget of \$243,000 was

compiled. The income for this budget consisted of the member association dues; General Assembly registration and exhibit fees; *Journal* advertising income and a service fee to be paid by the United States Committee, Inc., for the use of the space and services it would need in carrying out its administrative activities.

As a result of the Executive Board's actions, the World Medical Association now has full responsibility for the administration and financing of its Headquarters Secretariat and the *World Medical Journal*.

The Executive Board, in assuming that the member associations would undertake their full financial responsibility in support of the activities of the World Medical Association, were able to allocate approximately \$20,000 in the 1960 budget for new and special W.M.A. projects for this year.

## OBITUARIES

### LE DOCTEUR ADRIEN BONIN

#### ELOGE FUNEBRE

Le 3 décembre 1959, s'éteignait à l'Hôpital Général de Verdun, après deux jours de maladie, le docteur Adrien Bonin, chef du Service d'anesthésie de cette institution, de 1932 à 1954, année où il prit sa retraite. Né à Sainte-Elisabeth de Joliette, il fit ses études classiques à l'Assomption et au Collège Sainte-Marie. En 1904, l'Université Laval de Montréal lui remettait son doctorat en médecine et la même année, il se rendait à Paris afin d'y poursuivre des études spéciales; il y demeura deux ans.

De retour au pays, des confrères de collège, devenus religieux, lui font voir le bien immense qu'un médecin peut accomplir dans l'Ouest canadien. Patriote convaincu et médecin très chrétien, le docteur Adrien Bonin se joignait à cette phalange de professionnels qui s'établissaient à cette époque dans les provinces des "prairies". En 1911, le Conseil Médical de la Grande-Bretagne lui donnait le droit d'exercer sa profession dans tout l'empire britannique; en 1913, il devint membre du Collège des Médecins et Chirurgiens du Manitoba. Il y a quelques années, il nous était donné de rencontrer dans cette belle partie de notre pays, quelques membres de familles à qui le docteur Bonin avait prodigué ses soins au début du siècle. Avec quelle émotion, ces personnes n'évoquaient-elles pas le souvenir de ce médecin qui était pour eux le conseiller moral, le confident fidèle et le médecin presque infailible. Ayant trop présumé de ses forces, et sachant bien que sa résistance physique finirait par céder, le docteur Bonin venait s'établir en 1916, dans un centre canadien-français de la province d'Ontario. Il unissait à ce moment sa destinée à celle d'Eva Racine qui devint la compagne rêvée de sa vie et qui sut durant les 43 ans que durèrent leur union, comprendre la grandeur de la vie du médecin et les sacrifices qu'il faut accepter de toute nécessité.

L'idée de perfectionner ses connaissances et le goût de l'étude ne quittèrent jamais le docteur Bonin; il se faisait un devoir d'assister, soit au Canada, soit aux Etats-Unis, voire en Europe, aux congrès susceptibles

d'enrichir son savoir. Aussi, en 1927, le voyons-nous quitter la pratique générale, pour se consacrer exclusivement à l'étude de l'anesthésie. Pendant trois ans, à l'Hôtel-Dieu de Montréal, il fut l'élève ponctuel du professeur Larocque, qui lui enseigna l'art de pratiquer cette délicate spécialité. Et de 1930 à 1932, il poursuivit sa formation dans les différents services d'anesthésie de la métropole notamment à l'Hôpital Général de Montréal. La rachianesthésie qui connaît un certain engouement à cette époque, ne le laissa pas indifférent, au point qu'il la pratiqua de main de maître, et j'ai souvenir de quelques grands malades que les chirurgiens purent opérer avec succès grâce à l'habileté de l'anesthésiste. Quand l'Hôpital Général de Verdun ouvrit ses portes en 1932, le docteur Bonin y fut nommé chef du Service d'anesthésie et il le demeura jusqu'en 1954. Le Collège Royal des Médecins et Chirurgiens du Canada reconnut sa compétence en lui décernant en 1945 le certificat de spécialiste en anesthésie; quelques années plus tard, le Collège des Médecins et Chirurgiens de la Province de Québec posait le même geste. Il ne laissait rien au hasard, et il avait appris que l'on n'obtient rien sans peine; il sut inculquer à ses confrères sa méthode de travail et nous ne croyons pas blesser qui que ce soit, en écrivant que le service qu'il dirigeait devint rapidement une unité qui répondait admirablement aux exigences du temps.

Il se donna réellement à sa carrière, comme en font foi ces paroles du président du bureau médical en 1954, lors d'un banquet auquel assistaient tous les médecins de l'hôpital qui désiraient honorer de façon officielle certains de leurs confrères qui s'étaient illustrés dans la pratique de leur art: "En témoignage de haute estime pour une carrière consacrée entièrement au service des malades dans la pratique générale de l'anesthésie depuis la fondation de l'institution, l'Hôpital Général de Verdun, dédié au Christ-Roi, a résolu de décerner un diplôme d'honneur et le titre de 'Médecin Emérite' au docteur Adrien Bonin."

Homme droit et juste, le docteur Adrien Bonin savait prendre ses responsabilités; durant plusieurs années, il fut secrétaire du Comité Exécutif, tâche plutôt difficile à cette époque, car l'Hôpital Général de Verdun, en pleine évolution, voulait devenir universitaire et désirait être reconnu par le Collège des Médecins et Chirurgiens de la Province de Québec et le Collège Royal des Médecins et Chirurgiens du Canada, comme centre de formation post-scolaire. Fin psychologue cependant, Adrien Bonin ne savait déplaire, et il connaissait toujours le mot juste qui faisait sourire et qui donnait espoir. Il fut toute sa vie, un grand optimiste et un grand croyant; c'est, sans aucun doute, cette saine philosophie qui lui donna le courage de surmonter les grandes épreuves que cette âme fortement trempée eut à subir. Il vit venir la mort avec sérénité et son dernier regard fut presque un sourire au prêtre, aux religieuses, aux siens et à ses confrères agenouillés à son chevet; il nous a laissé l'exemple d'une vie richement remplie, et au moment du grand départ, c'est un "au revoir" qu'il semblait nous dire.

Que Madame Bonin et les membres de sa famille veuillent bien trouver ici l'expression des sincères condoléances des autorités religieuses et de tous les médecins de l'Hôpital Général de Verdun.

EUGENE THIBAULT

DR. A. LLOYD ANDERSON, 65, died on December 7 in a Toronto hospital. A native of Ontario, he moved west to Saskatchewan with his family in 1910. Dr. Anderson studied medicine at the University of Toronto, where he graduated in 1921. After a period of general practice in Saskatoon, he went to England and Vienna to continue his postgraduate studies. On his return to Saskatoon, he specialized in internal medicine. During the Second World War, Dr. Anderson served as a surgeon captain in charge of naval medical stations in Esquimalt, Halifax and Newfoundland. He first joined the RCNVR in 1924 and went on active service in 1939. Dr. Anderson was awarded the O.B.E. by King George VI and was also decorated by the Norwegian government. Before his retirement in 1947, because of ill-health, he served as chief of medical services at the City Hospital, Saskatoon.

Dr. Anderson is survived by his widow, two sons and a daughter.

DR JOSEPH ARPIN de Montréal est mort le jour de Noël à l'âge de 64 ans après une brève maladie. Le défunt était né à Ste-Madeleine et avait fait ses études à Sherbrooke. Il avait été reçu en médecine à l'Université de Montréal en 1920. En plus de l'exercice de la médecine, le docteur Arpin s'occupait aussi de nombreux organismes paroissiaux et politiques. Il laisse dans le deuil, outre sa femme, ses enfants et ses petits-enfants, son frère, le docteur Charles Norbert Arpin de St-Jean.

DR. FRANK CREAGHAN HAZEN died suddenly at his home in East Riverside, King's County, N.B., on January 8, aged 39 years. He was the son of D. King Hazen, Q.C., and the late Mrs. Hazen of Saint John and a grandson of the late Chief Justice Sir V. Douglas Hazen. He was educated in the Saint John city schools, graduated in medicine from Dalhousie University and held a Diploma in Public Health from the University of Toronto. He practised in Guysboro, N.S., and Plaster Rock, N.B., for a few years and was appointed medical health officer and chairman of the Board of Health for Saint John in 1952.

Dr. Hazen is survived by his widow, the former Miss Elaine McArthur of Pictou, N.S., and a son and daughter, his father, one brother and two sisters.

DR. HUGH ANDREW HENDERSON's untimely death on December 18, 1959, at the age of 47, leaves a gap in the medical profession of British Columbia, and especially of Vancouver, that will be hard to fill.

Into his comparatively short life, however, he crowded a great deal of useful activity, and he lived a very full life. Educated at Upper Canada College, he went to Toronto University to study medicine, graduating in 1936. At school and at college he was a notable athlete; and in later life he was an ardent fisherman. He had other hobbies, among them wood-working and coin collecting. In the Second World War, he served overseas where he was in command of a Field Surgical Unit, and saw service in England, Africa, and Italy. In 1951 he was awarded membership in the Royal College of Obstetricians and Gynaecologists, and came to Vancouver to practise. He became known as an outstanding man in his specialty; he was associated with Dr. Albert Trites, whose office he took over after the death of the latter some months ago.

He was clinical instructor in the Faculty of Medicine of the University of British Columbia. He was regarded very highly as a consultant, and was, as everyone thought, destined for a brilliant career; we are all the losers from his early death.

He leaves a widow and two children, to whom we respectfully offer our sincerest sympathy.

J. H. MacD.

DR. ARTHUR B. JAMES, 72, died at his home in Toronto on November 29. Born in Brantford, Ont., he received his medical education at the University of Toronto, where he graduated in 1908. Dr. James practised in Toronto until World War I, when he enlisted in the RCAMC and served overseas as a major. In the Second World War he became commanding officer of No. 2 Field Ambulance. On his return to Canada he organized the opening of the Chorley Park Military Hospital in Toronto. Specializing in urology, Dr. James had practised in Toronto for over 50 years and was associated with the Toronto East General Hospital.

His widow, four daughters and two sons survive him.

DR. DAVID BRYANT MORRIS, 46, died at Windsor, N.S., on January 11. He was educated at Windsor schools and King's College School, and graduated from Dalhousie University Medical School in 1937. After graduation he did three years' postgraduate work in London, England, and New York. He returned to Windsor in 1940, and went into practice with his father, the late Dr. C. H. Morris. During the Second World War Dr. Morris served from 1940 to 1944, first in a hospital ship and later in an English base hospital. Dr. Morris was past-president of the Hants County Branch of the Canadian Legion, a past-president of the Medical Board of the Payzant Memorial Hospital, and a member of the Nova Scotia Medical Society.

Surviving are his widow, the former Marion Priest of Pictou, a son Donald, attending Dalhousie Medical School, a sister, Claire, the wife of Dr. John Puddicombe, Ottawa, and a brother, Gilbert, of Mahone Bay.

W.K.H.

DR. THOMAS RUSSELL NICHOLS, 59, suffered a heart attack and died in his Stratford, Ont., office on November 12. Born in Stratford, he attended the University of Toronto for his medical studies and graduated in 1924. During the First World War Dr. Nichols served in the Royal Flying Corps. As a specialist in anaesthesia, he practised in Stratford and was head of the department of anaesthesia at the Stratford General Hospital.

His widow, a daughter and a son, Dr. W. R. Nichols of Pittsburgh, survive him.

DR. KARL S. STERNBACH, 62, died in Toronto on November 9. A native of Austria, he received his medical degree at the University of Vienna in 1921. In 1938 he came to Canada and for three years did research work at the Banting Institute and the Connaught Laboratories. He then obtained his certification in urology and set up a practice in Toronto.

Dr. Sternbach is survived by his widow and a daughter.

## PROVINCIAL NEWS

### BRITISH COLUMBIA

The Annual Scientific Session of the Section of General Practice of the Canadian Medical Association, B.C. Division, will be held at Harrison Hot Springs on March 30 to April 2, inclusive, and an excellent program of speakers has been arranged, including Dr. Robert Laird, Professor of Surgery of Toronto University.

This Session has become one of the most important meetings of medical men in British Columbia, and many vital matters are coming up for discussion at this meeting.

The Occupational Health Conference to be held in the spring of 1960 promises to be an important affair. The first conference was held in February 1958, with an attendance of 100. The Conference in March 1959 had an attendance of 160. The Committee on Occupational Health of the B.C. Division is in charge of this, with the Vancouver Board of Trade and the Greater Vancouver Health League co-operating, while the B.C. Division is co-sponsor. Joint meetings with the Northwest Association of Occupational Medicine and the Registered Nurses' Association are a feature of the conferences.

The B.C. Medical Library Service came into being at the beginning of this year. This is the culmination of some two years of work on a plan whereby a system was to be installed, ensuring adequate library service to all men practising medicine in the province.

Of the medical libraries at present existing in the various areas of B.C., few are at all adequate, especially as regards journals. One main object of this Service will be to strengthen and supplement these libraries in this and other directions.

The main library will be situated in Vancouver—the large library of the Vancouver Medical Association has been handed over to the Provincial Service, and will be the central source from which the Service will operate. The British Columbia College of Physicians and Surgeons has assumed sponsorship of this plan, and is providing funds for its operation, following a mandate given to it by a large majority of the profession, who voted on a plebiscite last year. It will come under the Council of the College, as part of their educational program.

As a result of two years' work or more, a joint committee has prepared "A Medical Guide in Determining Fitness to Drive a Motor Vehicle." This has been prepared by the combined work of the B.C. Division of the C.M.A., through a section of the Occupational Health Committee, headed by Dr. John A. Nelson, the Department of Health and Welfare of B.C., and the Motor-Vehicle Branch of the B.C. Government.

This will be printed, and distributed to all physicians. It is extremely comprehensive, and deals with systemic disease, eye defects and symptoms, metabolic disease, and orthopaedic, neurological and psychiatric disturbances as well as disorders of hearing. It discusses, too, the effects of drugs, and alcohol, together with many suggestions to doctors.

This should prove a most valuable guide. It is largely based on reports of American Medical Association committees, and standards suggested by them, with suitable modification for Canadian circumstances.

A new and simple form of examination of drivers of private cars has been drawn up by the Traffic Safety Committee of the B.C. Division. Examinations and arrangements for consultations are made by the family or private physician.

J. H. MACDERMOT

### ALBERTA

Dr. Malcolm C. Taylor, Associate Professor of Political Economy at the University of Toronto, has been appointed Principal of the University of Alberta in Calgary. He replaces Dr. Andrew Doucette, Director of the U. of A. in Calgary since 1947, who will administer the expanding teacher-training program at the University. Dr. Taylor, who is a native Albertan, is well known to the medical profession. After extensive training in the University of California he served with the Health Planning Commission of Saskatchewan in 1948-49, finally becoming Director of the Saskatchewan Health Survey.

Since 1951, Dr. Taylor has been a member of the staff of the U. of T. except for a period in 1952 when on a Rockefeller Foundation award he carried out a study of health insurance throughout Canada. He has also been consultant to the governments of Ontario, Manitoba, New Brunswick and Prince Edward Island in the establishment and administration of their health insurance programs.

As a result of an increase in medical fees, both lay and professional members of the Board of Medical Services (Alberta) Inc. have presented briefs to the Council of the College of Physicians and Surgeons of the province. The substance of these is that, as a result of increased fees and to a lesser extent increased utilization, the rates in M.S.(A.)I. contracts have gone up to the point that fear is expressed that the corporation may be priced out of business, or forced to introduce restrictive coverage.

Following increases in the fee schedule in 1958 and again in 1960, a physician who in 1957 received \$100.00 for the care of any particular family will now receive \$132.00 for the same services, and if the increased utilization of 2% per year is taken into account, the amount will be \$139.50.

The warning is issued that if the profession does not lead the way in the development of a sound prepayment scheme, others will; whoever controls the payment of the cost of medical care controls medicine. It is pointed out that utilization is governed more by the physician than by the patient. The restraints on the cost of services, normally met when buyer and seller deal directly, are removed when they deal through an intermediary. When the intermediary has been established by the seller—in this case the medical profession—the onus is on the profession to restrain costs.

Utilization of services in M.S.(A.)I. was studied by Council. It was indicated that while the first visit to a patient is initiated by the latter, subsequent visits can be controlled by the physician. The physician who consistently sees his patient much more frequently than the average in the area may be assumed to be abusing the plans.

The following resolution was approved:

"WHEREAS isolated cases of gross over-utilization of prepaid medical services by members of the medical profession continue to exist,

"BE IT RESOLVED THAT M.S.I. be requested to continue studies of this problem on a statistical basis and to present pertinent data to Council from time to time,

"AND FURTHER BE IT RESOLVED THAT the Registrar write doctors whose practice is found to deviate grossly from the usual pattern in the area and whose cases have been reviewed by Council, summarizing the pertinent data and pointing out that a continuation of the unfavourable experience would force

"a. the application of a proration of payment of their accounts on the basis of an average for fellow practitioners in the same district or

"b. cancellation of the doctor's membership in Medical Services (Alberta) Incorporated."

W. B. PARSONS

### SASKATCHEWAN

Sponsored jointly by the Regina Rural Health Region and the Regina City Health Department in association with the Regina and District Medical Society, prenatal classes have been initiated in Regina for residents of the city and surrounding rural districts.

A feature of this new service has been its co-operative planning carried out by several agencies. The Regina and District Medical Society has appointed a medical advisory committee consisting of Drs. L. E. Cowan, George Walton, T. M. Black, L. A. Cawsey and M. K. Dehnel. A nursing advisory committee has also been chosen to help implement the program through teaching procedures.

A series of prenatal classes will be made available for expectant mothers. The physicians in Regina have been provided with posters and leaflets which call attention to the classes.

Dr. J. W. T. Spinks was installed as the fourth President of the University of Saskatchewan at a special Convocation on January 30.

Dr. Spinks became President last November 1, on the retirement of Dr. W. P. Thompson. The official installation ceremony was delayed because of the many University Jubilee events.

Honoured by the City of Moose Jaw, Dr. F. H. Wigmore has been named citizen of the year.

Plans for a civic centre in that city were meeting with difficulty. Dr. Wigmore reorganized and carried through to a successful conclusion a new campaign, with the result that the new centre is now in active use.

Two years ago Dr. E. R. Stewardson of that city was also named as citizen of the year for his efforts in organizing a Junior City Band.

A special joint committee of the Saskatchewan Anti-Tuberculosis League and the Provincial Government has been set up to study the decreasing demand for tuberculosis sanatorium accommodation and the future of the 47-year-old Saskatchewan Anti-tuberculosis League. The Committee will report to the Government and the League, having been directed to enquire into

three specific aspects of the program: (1) the present and probable future case load of tuberculosis, particularly in terms of plan and facility needs; (2) the possibility of the League's engaging in a broader program outside the tuberculosis field, and (3) the resulting need for beds for the tuberculosis or other programs, with a long-range projection of bed use and location facilities.

Dr. Harry M. Collins of Saskatoon was elected Chairman by acclamation as the Saskatoon Public School Board swung into operation for the year 1960.

In January it was announced that the Saskatchewan Provincial Department of Public Health would not participate in National Health Week, sponsored by the Health League of Canada.

Speaking recently at Wadena, Premier T. C. Douglas prophesied that "if Saskatchewan sets up a prepaid medical care program, within 10 years all other provinces will follow its lead." G. W. PEACOCK

### MANITOBA

Dr. M. C. Hart of the Children's Hospital, Winnipeg, has been awarded one of six annual fellowships granted in North America by the American College of Physicians. His name was forwarded to the College because of his research work done here in cardiology. Dr. Hart will continue research work under Dr. Mark Nickerson, department of pharmacology, University of Manitoba, for a year starting in July 1960.

The annual report of Manitoba Medical Service, the doctor-owned prepayment health scheme, was made to the participating doctors in the Royal Alexandra Hotel, Winnipeg, on January 16. About 280 doctors attended and Dr. A. R. Tanner presided.

Mr. E. W. H. Brown, one of the directors, spoke of the new subsidiary company, United Health Insurance Corporation Limited, wholly owned by M.M.S. It provides indemnity contracts in contrast to the service contracts of M.M.S.

Dr. J. E. Hudson of Hamiota discussed the difficult problem of rural registration. One municipality has already taken out a service contract for its people and several other municipalities have made inquiries.

Dr. K. R. Trueman answered the question: "Can we look after the medically indigent?" and thought it possible with government assistance.

Mr. Morris Neaman, honorary treasurer, said that the corporation had every reason to be optimistic. The health service offered to subscribers was the most liberal in North America. Administrative expenses amounted to 6%. The new premises at Polo Park will be ready late in 1960. The corporation is financially sound but has no surplus.

Dr. R. L. Cooke spoke of the survey undertaken by an independent firm to ascertain Winnipeg public opinions on medical care. Six out of seven of those holding prepayment contracts for medical care were subscribers of Manitoba Medical Service and they are loyal to M.M.S. They would welcome additional services such as dental, nursing and ambulance services but wish rates to be increased only slightly.

Dr. Arthur H. Lyon of Windsor was welcomed as president of Trans-Canada Medical Plans. He told of efforts being made to provide world-wide medical care for subscribers to plans under Trans-Canada supervision.

Dr. D. N. C. McIntyre discussed medical claims and deviates from norms.

The arrangements were excellent and lively interest was maintained during the six-hour meeting. The growth of M.M.S. was shown in a statement that in 1944, when the plan was started, 8303 persons were covered and in 1959, 346,000. Subscriptions have risen from \$16,000 to \$9,000,000.

Dr. Alvin T. Mathers, 71, died in Deer Lodge Military Hospital on January 4, after a distinguished career in psychiatry and medical education. His father was editor of the first newspaper in Portage la Prairie and his uncle was a chief justice of Manitoba but, as a boy, he decided on medicine. Born in Neepawa, he was educated there and in the University of Manitoba, graduating M.D., C.M., in 1913. He did postgraduate work in the U.S.A., France, Switzerland, Germany and England. For three years he was superintendent of Winnipeg Municipal Hospitals. From 1917 to 1918 he was Captain with the R.C.A.M.C. at Tuxedo Barracks, and then was appointed provincial psychiatrist, a post which he held until 1942, when he resigned. In 1931 he was appointed Dean of the Faculty of Medicine, University of Manitoba, and held office till 1949 but continued to serve as a teacher of neurology and psychiatry until 1954, when he was appointed Professor Emeritus.

He had many other honours: LL.D. Manitoba, 1949; senior member, Canadian Medical Association, 1959; president, Winnipeg Medical Association; vice-president, Manitoba Medical Association; president of The Royal College of Physicians and Surgeons of Canada; president of the Medical Council of Canada; secretary and president of the Association of Canadian Medical Colleges.

As provincial psychiatrist his psychiatric advice was made available in court cases and on numerous occasions he acted as a friend of the court. He was loaned as an expert witness in psychiatry to courts in North Dakota, Saskatchewan, Ontario and British Columbia.

He is survived by a daughter, Mrs. George Sheldon of Dubuque, Iowa, and a sister, Mrs. C. W. Atkin of Winnipeg.

Ross MITCHELL

## QUEBEC

A meeting of the Industrial Medical Association of the Province of Quebec will be held on February 25, 1960, at 8.00 p.m. in the Amphitheatre of the Montreal General Hospital. The topic "Are Periodic Health Examinations Worthwhile?" is to be discussed by Dr. D. G. Kinnear, Executive Health Clinic, Montreal General Hospital; Dr. E. A. Turcot, Imperial Oil Limited; and Dr. B. T. Rogers, Bell Telephone Company.

Two investigators in the field of neuromuscular disorders have been named recipients of the Kenny

Scholar award for 1960. These awards made by the Sister Kenny foundation went to an anatomist in the University of California and to Dr. Leonard S. Wolfe, medical research fellow at the Maudsley Hospital, London, England. Dr. Wolfe will carry out his program of research at the Montreal Neurological Institute, and will chiefly be studying the biochemistry and physiology of natural substances which excite or inhibit nervous or muscular activity. Dr. Wolfe, incidentally, is a native of New Zealand but has studied in the University of Western Ontario in the past.

The Board of Directors of the Association of Radiologists of the Province of Quebec will be as follows: Dr. Jean Bouchard, Royal Victoria Hospital, Montreal, President; Dr. J. S. Dunbar, Montreal Children's Hospital, Montreal, Vice-President; Dr. O. Raymond, Hôpital du Sacré-Cœur, Montreal, Secretary; Dr. L. I. Vallée, Hôpital St-Luc, Montreal, Treasurer; Dr. R. L. Duberger, Hôpital St-Vincent-de-Paul, Sherbrooke; Dr. R. G. Fraser, Royal Victoria Hospital, Montreal; Dr. H. Lapointe, Hôpital de l'Enfant-Jésus, Québec; Dr. M. Samson, Hôpital St-Michel-Archange, Quebec; Dr. I. Sedlezky, Montreal Jewish Hospital, Montreal.

On nous fait part des nominations suivantes à l'Hôpital Notre-Dame de Montréal: Dr André Leduc nommé chef du Service de bactériologie et d'hématologie, Dr Roland Cloutier, chef du Service d'ophtalmologie; Dr André Mackay, directeur du Centre pulmonaire et cardio-vasculaire; Dr Jacques Fortier, directeur du Centre maternel et Dr Gilbert Blain, adjoint du directeur médical.

Nous apprenons également que le Dr L. C. Simard a été nommé professeur titulaire d'anatomie pathologique à l'Université de Montréal.

## CANADIAN ARMED FORCES

Brigadier Pierre Tremblay, O.B.E., C.D., of Montreal, retired from the Regular Army at the end of January after 29 years of service.

An officer of the Royal Canadian Army Medical Corps, Brig. Tremblay had been Director General of Medical Services at Army Headquarters since October 1958.

Brig. Tremblay was born in Montmagny, Que., on July 16, 1905. He received his Bachelor of Arts degree from Collège Ste-Anne-de-la Pocatière, and his medical degree at the University of Montreal.

He joined the Army's Permanent Force in 1931 and served at Quebec Military Hospital until 1937. During the period 1937-39 he was officer commanding the military hospital at St-Jean, Que. He went overseas in 1940 and served in the United Kingdom, France, Belgium and Holland with several units including the Royal 22nd Regiment, 18th and 19th Field Ambulances, and 6th, 17th and 24th Canadian General Hospitals.

On his return to Canada he was appointed Area Medical Officer at Headquarters, Eastern Quebec Area, and in December 1947 went to Army Headquarters, Ottawa, as Deputy Director of Medical Services. In September 1951 he was appointed Command Medical Officer of Quebec Command at Montreal.

## ABSTRACTS from current literature

## MEDICINE

## The Pansystolic Regurgitant Murmur: A Simple Method of Identifying Its Anatomic Source.

L. A. SOLOFF *et al.*: *Am. J. M. Sc.*, 237: 744, 1959.

The characteristic changes in the pansystolic murmurs induced by nor-epinephrine are outlined in this paper. The principal effect of raising the systemic diastolic arterial pressure is to increase the resistance to forward outflow from the left ventricle.

If mitral regurgitation is present, retrograde flow through the mitral valve will increase. Consequently, the apical pansystolic murmur will increase in amplitude. If ventricular septal defect is present, retrograde flow through the defect will increase. Consequently, the pansystolic murmur at the tricuspid region will increase in amplitude and may be audible and recorded even farther to the right. The increased flow and pressure transmitted through the pulmonary valve will accentuate the pulmonic component of the second sound. If the increase in flow is considerable, the split between the aortic and pulmonic components of the second sound may widen.

On the other hand, increased resistance to forward outflow of the left ventricle does not affect, or at least does not increase, the flow through the tricuspid valve. Hence, nor-epinephrine does not appreciably change the murmur due to this lesion. S. J. SHANE

## Peripheral Neuropathy in Myxoedema.

L. E. CREVASSÉ AND R. B. LOGUE: *Ann. Int. Med.*, 50: 1433, 1959.

In myxoedema cerebral blood flow and cardiac output are diminished, and glucose utilization by the nervous system is altered. This profound alteration in metabolism is directly reflected in the nervous tissues, where oxygen and glucose utilization and requirement are quite high. Consequently, the incidence of nervous system manifestations is exceedingly high. Lethargy, diminution of mental acuity, and emotional disturbances are well-recognized features of myxoedema.

In patients with radioactive-iodine-induced myxoedema, the authors investigated the cause of a severe radicular type of pain in the upper and lower extremities by myelograms for herniated intervertebral discs, with negative findings. The character and distribution of the lancinating pains closely simulated pain of nerve root compression. Peripheral neuropathy, manifested by severe paraesthesia and/or lancinating extremity pains, occurred in 47% of 65 patients with primary myxoedema. It was the presenting complaint in three of this group. Histological examination of a peripheral nerve in a patient with symptomatic myxedematous neuropathy revealed swelling and degeneration of the myelin.

A specific action of the thyroid hormone is at the myoneural junction, and this may account for the typical delayed reflexes and some of the neuromuscular weakness. Symptoms related to peripheral neuropathy are reversible, regardless of the duration of the illness, and will resolve on adequate thyroid replacement alone. The motor and sensory symptoms are accompanied by a paucity of neurological signs, and the patients are occasionally thought to be hysterical. S. J. SHANE

## Evaluation of the Adequacy of Needle-Biopsy Specimens of the Kidney.

W. F. KELLOW *et al.*: *A. M. A. Arch. Int. Med.*, 104: 353, 1959.

The material for this study was obtained from 103 autopsies in which needle biopsy of the kidney was performed before and during the autopsy. In 30 cases without significant renal disease, only one specimen was misinterpreted and considered to be abnormal. In cases with renal disease, 82 diagnoses were made in 73 patients with histological abnormalities. Of a total of 308 biopsy specimens 76% were accurate in reporting the primary histological abnormality, and the correct diagnosis was made in 69%. The number of glomeruli in a specimen had no direct relationship to the accuracy of diagnostic interpretation. If a specimen had at least four glomeruli, it was usually adequate for histological study. In general, diffuse renal disease was more likely to be diagnosed than focal disease.

W. GROBIN

## Control of Nasal-Staphylococcal-Carrier States.

H. J. WEINSTEIN: *New England J. Med.*, 260: 1308, 1959.

In the surgical services of a large tuberculosis hospital 39% of the personnel were found to be nasal carriers of haemolytic, coagulase-positive *Staphylococcus aureus*. An ointment containing 500 units of bacitracin per gram and 5 mg. of neomycin per gram was applied to the anterior nares three times a day for six weeks. The cultures of those so treated became negative in 72% as compared to the group treated with ointment base alone, in only 23% of whom cultures became negative. In a control group cultures became negative in 22%.

The author states that the use of ointment is an adjunct only. He feels that the associated educational factors were probably just as important as the use of the ointment.

ROBERT JACKSON

## SURGERY

## Smoking and its Relation to Nutritional Status of Patients after Gastrectomy.

W. F. MIRTHY, L. M. ROUSSELOT AND G. J. DELANEY: *Ann. Surg.*, 150: 76, 1959.

A study of the smoking and drinking habits of 171 patients who had a Billroth II subtotal gastrectomy for duodenal ulcer as an elective operation showed no differences as to loss of weight or postoperative digestive complaints. Smoking did not affect the amount of weight loss or increase the incidence of postoperative digestive complaints. But late postoperative complications, such as haemorrhage, persistent vomiting, marginal ulceration and perforation of stomal ulcer, all occurred in the 65% of the patients who were smokers.

BURNS PLEWES

## Observations on Thrombosis and Endothelial Repair Following Application of External Pressure to a Vein.

H. R. ROBERTSON, J. R. MOORE AND W. A. MERSEREAU: *Canad. J. Surg.*, 3: 5, 1959.

In 450 adult rats under anaesthesia, the effects of application of pressure to the external surface of the exposed inferior vena cava were studied. A specially designed apparatus was used for this purpose, inserted into the open abdomen under sterile conditions, and exercising a measurable pressure. The venae cavae were later removed at variable intervals, and fixed

by a modified Mann perfusion technique. They were then studied histologically.

With light pressure for a short period, no change was visible in the veins (after five grams' pressure for 10 seconds). When pressure was increased to 10 g. for 30 seconds, discrete and probably reversible lesions were produced. When a heavier pressure of 100 to 200 g. was applied for one to three hours, the endothelium was seen to be destroyed, with formation of a small thrombus. This was sometimes followed by repair by proliferation of endothelial cells at the edges of the lesion. Pressure through the intact abdominal wall would also produce endothelial damage and thrombosis. It is possible that pressure exerted on veins in human subjects may be responsible for damaging endothelium, and that thrombosis and repair are constantly taking place in various parts of the body. However, other so far unidentified factors must be present to permit or stimulate progress of the thrombus initiated by trauma.

#### Use of Isolated Ileal Loop for Total Replacement of the Ureter.

T. K. GOODBRAND *et al.*: *Canad. J. Surg.*, 3: 25, 1959.

In dogs under general anaesthesia, the authors replaced a portion of the ureter by a loop of ileum by an experimental technique described in detail. They subsequently analyzed the urine and after an interval of between 4 and 12 weeks performed intravenous pyelography. Finally, having replaced one ureter with an ileal loop, they removed the other kidney, leaving the animal entirely dependent on the operative anastomosis. Laboratory tests were repeated, and after 12 months the animals were sacrificed.

They conclude that an isolated ileal segment is a satisfactory replacement in cases of ureteral damage, and that total replacement is probably more satisfactory than partial replacement, because the kidney pelvis and the ileum are of comparable size. Mucous secretions from the ileal segment do not cause any trouble beyond producing persistent proteinuria. Peristaltic activity of the isolated loop appears to be retained and thus to prevent reflux and ascending infection. Rapid passage of the urine along the ileum may also account for the minimal electrolyte reabsorption.

Hyperchloræmic acidosis is likely due to impaired kidney function rather than excess chloride reabsorption. No histological change was seen in the ileal ureter after constant exposure to urine over long periods of time.

## THERAPEUTICS

### Chlorpropamide in the Management of Diabetes.

S. J. N. SUGAR, L. J. THOMAS AND T. M. EUGENIO: *A. M. A. Arch. Int. Med.*, 104: 360, 1959.

Of 84 patients treated with chlorpropamide for two to 11 months, 62% were satisfactorily managed. Of ten "primary tolbutamide failures", only two responded to chlorpropamide, but of 37 "secondary tolbutamide failures", 23 (62%) responded to this drug. The authors believe that many of the side reactions which they found could have been avoided if smaller doses (0.25 to 5 mg. per day) had been given. Gastro-intestinal symptoms, chest pain and muscular weakness were occasionally relieved by reducing the dose. Most patients responded to a daily dose of 0.25 to 5 mg.

W. GROBIN

### Nicotinic Acid and Fibrinolysis.

P. IMHOF *et al.*: *Schweiz. med. Wochenschr.*, 89: 736, 1959.

The accidental finding of apparently spontaneous total fibrinolysis in a patient, which lasted while nicotinic acid was being administered and disappeared after discontinuation of the drug, led the authors to study the effect of nicotinic acid on fibrinolysis. A survey of recent publications confirmed the above effect of nicotinic acid. Moreover, it has been found that nicotinamide has no such effect on fibrinolysis while nicotinyl alcohol is even more potent in this respect than nicotinic acid.

Intravenous administration of nicotinic acid in doses of one to two mg./kg. body weight produced total lysis in over half the persons tested and partial lysis in another sixth. The agglutination titre, which can be considered as good evidence of increased fibrinolytic activity, was found to be elevated in 14 out of 16 cases. The effect of intravenous administration is transient and in only one patient did total fibrinolysis persist for over one hour. Oral administration of 1 g. of nicotinic acid resulted in delayed onset of fibrinolysis but its effect was prolonged. There was no correlation between the degree of activation of fibrinolysis and the level of nicotinic acid in the blood.

W. GROBIN

### Effect of Food on the Absorption of Erythromycin Propionate, Erythromycin Stearate and Triacetyloleandomycin.

H. A. HIRSCH AND M. FINLAND: *Am. J. M. Sc.*, 237: 693, 1959.

Absorption of erythromycin propionate and erythromycin stearate was found to be markedly depressed by a meal, whereas that of triacetyloleandomycin was not. A dose of 500 mg. of erythromycin propionate or stearate given before breakfast displayed much greater activity in serum than a similar dose of triacetyloleandomycin given either before or after breakfast. When they were given after a meal, all three preparations exhibited more nearly similar activity. On a weight basis, erythromycin propionate given before breakfast was absorbed as well as triacetyloleandomycin given either before or after the meal, but erythromycin stearate was less well absorbed at either time. Erythromycin propionate was less well absorbed when given before breakfast.

S. J. SHANE

### Action of Prednisone in Insulin Resistant Diabetes.

W. OAKLEY *et al.*: *Brit. M. J.*, 1: 1601, 1959.

Immunological and other studies of 13 cases of diabetics who were found to be insulin resistant are reported. Anti-insulin factors were demonstrated by the mouse-convulsion test, the glucose uptake of the rat's hemi-diaphragm (R.D.) and the passive cutaneous anaphylaxis test (P.C.A.) in the guinea-pig. Details of these tests are given and the results of the test as applied to the various patients are described. In six patients the insulin resistance was successfully controlled with the help of prednisone. The P.C.A. test was positive in all these six cases but was negative in two other cases in which prednisone did not improve the insulin resistance. It was also negative in insulin-sensitive diabetics except for two cases requiring fairly high doses of insulin (74 and 100 units daily respectively).

The results of the P.C.A. and R.D. tests favour the view that excess of insulin antibodies may at times

produce insulin resistance but that there are several other types of antagonists to insulin. Prednisone appears to benefit the patients whose daily insulin requirement is nearer 1000 units and in whom there is no apparent cause for the resistance. Usually this type of resistance develops less than a year after onset of insulin treatment, often between three and six months.

W. GROBIN

## PATHOLOGY AND BACTERIOLOGY

### Pathology of 1957 (Asian) Influenza.

D. D. MARK: *Am. Rev. Tuberc.*, 79: 440, 1959.

Necropsy findings are described in the lungs in 17 fatalities associated with the 1957 influenza epidemic. Evidence of influenza infection was established in six patients by virus isolation from the lung, and in four patients by antibody studies. The lungs of all of the patients showed a characteristic necrotizing tracheobronchitis with foci of squamous metaplasia in the mucosa which is considered a distinctive feature of influenza viral infection. Two patients had isolated tracheobronchitis without a complicating pneumonia.

The importance of *Staphylococcus aureus* as a predominant superinfecting organism in fatal cases is emphasized.

S. J. SHANE

## RADIOLOGY

### Roentgenographic Aids in Diagnosis of Neoplasms of Liver and Extrahepatic Ducts.

J. A. EVANS AND Z. MUJAHED: *J. A. M. A.*, 171: 7, 1959.

Results of preoperative roentgenography in 35 patients with primary carcinoma of the gall-bladder are reviewed. Fourteen (40%) had some detectable abnormality on one or more roentgenographic studies. The plain film of the abdomen revealed a mass in the right upper quadrant in three cases, and the upper gastro-intestinal series showed evidence of extrinsic pressure in ten of the 32 cases where this examination was carried out. Oral cholecystography resulted in no opacification in 22 of 26 cases. Even intravenous cholecystocholangiography produced opacification only in two out of four cases. This points to the comparatively limited value of conventional roentgenological examinations of the gall-bladder and bile ducts for the diagnosis of neoplasms of the extrahepatic biliary system. In certain cases of obstructive jaundice, newer roentgenographic techniques, such as percutaneous transhepatic cholangiography and splenoportal venography, have been of greater value in diagnosing the conditions. W. GROBIN

## INDUSTRIAL MEDICINE

### Radiation Protection Laws and Codes—a Scramble for Action.

W. A. MCADAMS: *Am. Indust. Hyg. A. J.*, 20: 246, 1959.

Under the Atomic Energy Act of 1954, industry, educational institutions, medical and research organizations, and other groups are permitted to obtain and use nuclear fuels and by-product materials in ways not completely under control of the Atomic Energy Commission. Since that time, of the large number of legislative and other regulatory proposals dealing with atomic energy which have been considered by states, about 100 have already been approved.

It is now evident that the states consider radiation protection their inherent responsibility. At the beginning of 1955 there were few radiation protection laws and codes in effect. By December 24, 1958, nearly two-thirds of the states had some general radiation protection rules and about 20 had some special regulations for the control of shoe-fitting fluoroscopes. Nearly all the rules approved by the states to date have followed closely the recommendations of the National Committee on Radiation Protection and Measurements. In addition, 11 states have passed acts for co-ordinating atomic development activities within the state, and at least 32 states have established atomic-energy study committees.

The author stresses the need for caution when adopting new proposals lest the development of peaceful uses of radiation and atomic energy be handicapped. Several general principles are recommended: (1) laws and codes already in effect should be examined before any new law or regulations are issued; (2) rules should be developed carefully before adoption, and responsibility for control assigned by enabling legislation; (3) rules adopted should be clear and not too detailed or too specific; (4) regulations of other states should be examined and uniformity achieved when possible; (5) recommendations of the National Committee on Radiation Protection contained in National Bureau of Standards Handbook 61 (now under revision) should be followed.

MARGARET H. WILTON

## PUBLIC HEALTH

### Levels of Strontium-90 in Canadian Milk Powder Samples up to the End of December 1958.

P. M. BIRD AND P. G. MAR: *Canad. M. Serv. J.*, 15: 297, 1959.

This report, the second in a series, presents new data on the levels of strontium-90 in milk powder samples collected from a network of Canadian sampling sites. The period covered was April to December 1958. It also includes results of a special study using samples of liquid milk collected from a known herd at the Dominion Experimental Farm, Ottawa; these show the changes when the herd was switched from barn feed to pasture feed.

From these studies it is evident that the level of strontium-90 in Canadian milk continued to rise throughout 1958. Comparison with earlier Canadian data indicates that the rate of rise during the years 1956, 1957 and 1958 has been very nearly linear, with a yearly incremental average increase of about 3.5  $\mu\mu$  c/g. Ca.

Calculations were made in an attempt to estimate the expected strontium-90 level in human bone at the present time resulting from the strontium-90 ingested in the average Canadian diet during the period in which measurable amounts of strontium-90 have been present in milk. These indicate a probable body burden amounting to 0.0025  $\mu$ c, which is well below that recommended as maximum permissible by the International Commission on Radiological Protection (1955).

Attention is drawn to the fact that these calculations apply to adults for whom conditions of uptake and elimination are likely to be relatively constant with time. It is conceivable that distribution of strontium-90 in children may be different with a different permissible body burden, but the I.C.R.P. has not made separate recommendations.

MARGARET R. WILSON

## BOOK REVIEWS

**DOCTORS' COMMONS. A Short History of the British Medical Association.** Paul Vaughan. 254 pp. Illust. William Heinemann Ltd., London, England; British Book Service (Canada) Ltd., Toronto, 1959. \$4.25.

Books on the history of medical associations vary from the slim essay on a local medical society to the enormous volume of Fishbein on the American Medical Association. Some of these offerings are less digestible than others, but it is doubtful that any is more readable than the present delightful account by a skilled journalist of the rise and development of the British Medical Association. It follows hard on the heels of a much more detailed account by McMenemey of the origins of the Association (*The Life and Times of Sir Charles Hastings*) but whereas the latter ends with the death of this man, Vaughan takes the reader right up to the present day.

It is well to read such a history as this because it reminds us that a national medical association is not and never should be a doctors' trade union. Most of the great successes of the B.M.A. and its forerunner, The Provincial Medical and Surgical Association, founded by Hastings in 1832, brought no direct financial benefit to the doctors but they were of inestimable value to the public. Among the early successes were the obtaining of legislation on registration of births and deaths (without which epidemiology could scarcely exist), and on vaccination, while their attacks on the incredible maladministration of the Army Medical Services in the Crimea, on the inhuman restrictions on medical care for the poor, and on the chaotic state of medical education all bore fruit after many years of patient and persistent pressure on government.

Vaughan also draws attention to the fact that the Parliamentary Bills Committee of the B.M.A., which did steady work throughout the late Victorian and the Edwardian years, spent most of its time on measures unrelated to improvement in the status of the doctor. The committee played a leading part in sweeping away the unregistered midwife and in suppressing baby farms. Another activity described in detail is the campaign against the iniquitous trade in secret remedies, a campaign which found no support from the newspaper proprietors raking in millions of pounds a year in advertising revenue.

The struggles of the B.M.A. with government in 1911 and again in 1948 are recorded objectively, and make absorbing reading. It is worth noting here that the British Medical Association was the first to press for a national health service. The first recommendations appeared in 1930, and plans were again set out in 1938 and 1940 for extending the range of health insurance.

The lighter touch is not wanting in descriptions of men and events. There was the lady who shocked the distinguished guests at the B.M.A. House by singing "The Saucy Little Bird on Nellie's Hat", and there is a nice picture of the embarrassed Premises Committee of the B.M.A. trying to decide whether Epstein's statues were obscene or not.

All in all, this is a thoroughly worth-while and readable history of a great medical association.

**CANCER DIAGNOSIS AND TREATMENT.** Edited by John B. Field. 796 pp. Illust. Little, Brown & Company, Boston; J. B. Lippincott Company, Montreal, 1959. \$18.50.

Twenty-eight authors have contributed to this new book on cancer. They represent the medical schools of the U.S.A. from the Atlantic to the Pacific and each is an outstanding authority in his own field. Many physicians and surgeons will question the editor's claim that oncology should be recognized as a separate medical specialty; nevertheless this book presents comprehensively and concisely the present status of the diagnosis and treatment of malignant diseases.

Unfortunately its size limits detail and in some chapters this leaves something to be desired. However, the overall appreciation of the book is that it provides a mass of readily available information in which alternatives are presented in proper balance. The more one goes back to it, the more one is impressed with the excellence of certain chapters such as those on the breast by Haagensen, the stomach by Ochsner, and the male genital tract by Whitmore. Naturally any book dealing with a subject under such intense research as cancer may soon cease to present current opinion. However, these chapters and several others are examples of excellence, written by master surgeons, which will remain authoritative for a long time.

The practitioner who desires to understand the problems of malignant disease, and the postgraduate student who seeks an accepted viewpoint, will find it in this well-edited volume. Not only this, but it also presents an approach to a wider knowledge of cancer literature which, because of its rapidly increasing volume, sometimes overwhelms the doctor who seeks to keep himself abreast of progressive thought in the midst of the busy round of his routine work.

**PATHOLOGY.** Peter Herbut, Jefferson Medical College Hospital, Philadelphia, 1516 pp. Illust. 2nd ed. Lea & Febiger, Philadelphia; The Macmillan Company of Canada Limited, Toronto, 1959. \$18.50.

The second edition of this text on pathology has been brought up to date regarding the more recent developments in this field. This has increased the number of pages of actual text to 1469. In the opinion of the reviewer, the volume could have been somewhat reduced by omitting paragraphs on treatment of disease conditions which are not necessarily looked for in such a textbook. The general descriptions including the discussion of patho-physiology in this book are excellent. The illustrations, gross and microscopic, are of equal quality. Like its previous edition, the book contains sections written by twenty-one outstanding members of the Jefferson Medical College and this assures a broad outlook on pathology, not necessarily confined to morphology only. In some areas, however, it appears that proof reading was not too carefully carried out; there are typographical mistakes and in some areas the actual context of sentences has been changed because of such errors. Apart from these minor defects, this book represents an excellent and informative text for graduate and undergraduate seeking the latest information in the field of pathology, and ranks equally with other textbooks published in this branch of medical science.

**OUTLINE OF HISTOLOGY.** Margaret M. Hoskins and Gerrit Bevelander, Department of Histology, College of Dentistry, New York University. 112 pp. Illust. 4th ed. The C. V. Mosby Company, St. Louis, Mo., 1959. \$4.75.

This is the fourth edition of a handbook which is already well known and used in several of our universities. As the title suggests, it is a synopsis of histology, and it is more particularly designed for the use of dental students. Many teachers do not care much for this type of textbook, as they fear that the student will make only a simple effort of memory without true intellectual participation or real understanding of the problems. This may not entirely apply in the present instance because, for students of dentistry, histology and embryology should be regarded as sources of useful data for the understanding of pathological manifestations, and not as ends in themselves. Moreover, experience in teaching shows that good training will often be more useful to the student than too many disjointed notions. If the student is truly interested he will seek out for himself from the university library the information which may not be contained in an outline of the subject.

For these reasons the reviewer thinks that this book is well adapted to its purpose. The text is clear, concise and up-to-date. The illustrations are excellent and the two-colour reproductions are of very good quality. The only debatable point is the authors' classification of the subject into *general* and *dental* histology. This may lead one to believe that all that is not dental is general histology, whereas in fact general histology refers to the histology of tissues and special histology to that of organs. Dental histology can therefore be considered a subdivision of special histology. Unfortunately no part of this book is devoted to cytology.

**THE SCHOOL HEALTH SERVICE.** S. Leff and Vera Leff. 316 pp. Illust. H. K. Lewis & Co. Ltd., London. £1/10s.

In this book, Dr. Leff, a medical officer of health for a London borough, has made a valiant attempt to present the history, development and future outlook of the school health service in England and Wales, since its inception in 1907. It is to be regretted that, given such a promising theme, he has not presented it better. While the subject is of necessity exceedingly broad, and therefore admittedly difficult of presentation as a coherent whole, the author seems to have made little attempt at coherence. The basic sociology presented, necessary in any case for a complete understanding of the subject and doubly necessary on this continent, reads like a socialist party pamphlet of the 1930's; the book would gain immensely by a brief outline, presented at the beginning and without comment, of the relevant legislation.

However, the facts are all there, even though their extraction is difficult. North American readers will be impressed by the fact that the service has grown at all, for it is brought out clearly how in times of war, economic depression or battle for overseas trade, the school services are the first to be deprived of money, personnel and accommodation, and it is demonstrated what a long-term expense in health, happiness and manpower such short-term economies have proved to be time after time. The descriptions of conditions in some present-day English schools may shock readers in this country, but I do not feel that the author is guilty of exaggeration; rather he has softened the picture of some of the utterly disgraceful conditions in rural English schools.

The part of the book most interesting to readers in Canada is of course the effect of the National Health Service on the school health service; it is precisely this part which suffers most from Dr. Leff's incoherent presentation. This is regrettable, for in the present-day trend of medicine in Canada the subject is of enormous interest.

**MEDIZIN, VOL. 7. KLINIK PATHOLOGIE UND PROBLEME DER PERIARTERITIS NODOSA DES NERVENSYSTEMS** (Diagnosis, Pathology and Problems of Periarteritis Nodosa involving the Nervous System). A. Stammle. 152 pp. Illust. Alfred Hüthig, Heidelberg-Frankfurt-Am-Main, 1959. DM 18.-

This monograph gives a comprehensive review of the clinical and pathological aspects of the syndrome of periarteritis nodosa affecting the central and peripheral nervous system and of the problems involved, and a most extensive list of references from the international literature. As far as the etiology is concerned, the author assumes the existence of toxic effects of metabolic disturbances resembling those found in porphyria and leading to similar clinical pictures.

**A HISTORY OF NEUROLOGY.** Walter Riese, Medical College of Virginia. 223 pp. M.D. Publications Inc., New York, 1959. \$4.00.

This is by no means an orthodox history of neurology, tracing the rise of the specialty and giving biographical details of the men who shaped it. It is rather a series of short philosophical essays on the history of certain neurological problems and concepts. Riese at first considers the historical development of ideas about the function of the nervous system, then discusses the history of the nervous impulse, the reflex action, the doctrine of cerebral localization and such topics as the rediscovery of the whole, pain in neurology, diagnosis, prognosis and therapy in neurology. The later chapters are very brief indeed, and give only the barest details of the subject. However, there is a bibliography, a chronological table of events in neurology, with their general relation to world history, and lists of journals specializing in neurology and neurological societies.

**FRACTURES ET LUXATIONS** (Fractures and Dislocations). P. Mathieu. 211 pp. Illust. L'Expansion Scientifique Française, Paris, France, 1958.

Dans son avant-propos, l'auteur mentionne clairement que le but de ce précis est de rappeler, au médecin ou à l'étudiant, les signes qui permettent de présumer la nature et la gravité d'une fracture, ou d'une luxation, avant le contrôle radiologique. Il vise à intéresser surtout le médecin, qui est appelé à donner les premiers soins, à la suite d'un traumatisme routier ou industriel.

L'auteur ne prétend pas être complet, mais clair, disant ce qu'il faut surtout faire, et ce qu'il faut éviter de faire.

Les généralités sur les fractures et les luxations sont très à point. Elles rappellent plusieurs principes dont la connaissance est d'une importance majeure, tant pour le praticien qui apporte les premiers soins et qui verra le malade, plus tard, que pour le traumatologue à qui le malade est confié pour traitement spécialisé.

L'exposé sur les fractures et les luxations est bien fait, sans détails, comme le voulait l'auteur. Toutefois, le médecin praticien trouvera peut-être cette lecture un peu aride, manquant de coloris, dépassant les cadres de ses connaissances de bases en traumatologie, et souhaiterait, sans doute, plus d'illustrations.

**A SYNOPSIS OF SKIN DISEASES.** Bethel E. R. Solomons, Junior Consultant Dermatologist, Chelmsford and Essex General Hospital, England. 293 pp. Illust. John Wright & Sons Ltd., Bristol, England; The Macmillan Company of Canada Limited, Toronto, 1959. \$5.00.

This is a very complete synopsis of common and rare skin conditions and the author has covered each disease under the following headings: etiology, pathology, clinical features, treatment and prognosis. It may be too complete for the general practitioner and medical student but both would find it an excellent ready reference.

The appendix on patch testing is valuable for those interested in occupational dermatitis.

**SWINT: The Binocular Reflexes and the Treatment of Strabismus.** T. Keith Lyle, Surgeon, Moorfields Eye Hospital, and G. J. O. Bridgeman, Surgeon, St. Mary's Hospital, London, England. 392 pp. Illust. 9th ed. Baillière, Tindall & Cox, London; The Macmillan Company of Canada Limited, Toronto, 1959. \$8.95.

This is a worthy successor to Worth's *Squint*, the volume which has been supreme in its subject in the English language.

Lyle and Bridgeman have borrowed extensively, both in format and material, from the original work—that they might keep alive some of the genius of the early authors. The chapters on the physiology and the fundamental concepts of etiology bring out the best in the early editions. As the volume progresses through methods of investigation, the factors affecting treatment, the types of squint and their treatment, the work is moulded to bring out recent techniques and advances. This is admirably done: case presentations illustrate many of the problems and how, today, they are handled.

The book is a masterly example of the printing and publishing art. It would be essential to anyone seriously considering the problems of strabismus.

**MUCOPOLYSACCHARIDE UND MUCOPOLYSACCHARIDASEN** (Mucopolysaccharides and Mucopolysaccharidases). Heinz Cibian, Berlin, Germany. 319 pp. Illust. Franz Deuticke, Vienna, Austria, 1959. \$12.00 approx.

In recent years interest has shifted from the cell as the all-important element in the body to the contents of the spaces lying between the cells. This has led to a study of the mucopolysaccharides, which in combination with protein enter into the construction of the ground substance of connective tissue. The present monograph begins with an elementary account of connective tissue and mesenchyme and is then divided into three parts: (1) the mucopolysaccharides; (2) the mucopolysaccharidases, among which the hyaluronidases are best known to the clinician; (3) clinical application of the latter.

In the first of the three sections the author confines his description to those acid mucopolysaccharides which have been most investigated, such as hyaluronic acid, chondroitin and heparin. He discusses their identification, occurrence, properties and purification, and surveys their metabolism. In the second part of the book attention is concentrated on the hyaluronidases occurring in the testes and in bacteria. Both chemical and biological aspects are fully discussed, and this leads on naturally to the third section on diagnostic and therapeutic applications of these enzymes. The book is provided with a very extensive bibliography, taking the reader up to 1958, and with satisfactory subject and author indexes.

## FORTHCOMING MEETINGS

### CANADA

**SECTION OF GENERAL PRACTICE, B.C. DIVISION, CANADIAN MEDICAL ASSOCIATION**, Eighth Annual Scientific Session, Harrison Hot Springs Hotel, Harrison, B.C. (In charge of registration: Dr. R. A. White, Oliver, B.C.) March 30-April 2, 1960.

**ONTARIO CHAPTER, COLLEGE OF GENERAL PRACTICE OF CANADA**, Annual Clinic Day, Kitchener, Ont. (Dr. N. R. McMurchy, Publicity Chairman, 215 Frederick St., Kitchener, Ont.) April 6, 1960.

**CANADIAN ANAESTHETISTS' SOCIETY**, Western Divisional Meeting, Victoria, B.C. (Dr. W. L. Esdale, Secretary-Treasurer, B.C. Division, Canadian Anaesthetists' Society, 7476 Inverness St., Vancouver.) April 28-30, 1960.

**QUEBEC DIVISION, CANADIAN MEDICAL ASSOCIATION**, 22nd Annual Meeting, Quebec City. (Dr. D. G. Kinnear, Honorary Secretary, 1538 Sherbrooke St. West, Montreal 25, Que.) May 5-7, 1960.

**DIVISION DU QUÉBEC, ASSOCIATION MÉDICALE CANADIENNE**. Le 22<sup>e</sup> congrès annuel sera tenu dans la ville de Québec. (Dr. D. G. Kinnear, secrétaire honoraire, 1538 ouest, rue Sherbrooke, Montréal 25e.) 5-7 mai 1960.

**ONTARIO MEDICAL ASSOCIATION**, 80th Annual Meeting, Toronto, Ont. (Dr. Glenn Sawyer, General Secretary, 244 St. George Street, Toronto 5, Ont.) May 9-13, 1960.

**CANADIAN PUBLIC HEALTH ASSOCIATION**, 48th Annual Meeting, Halifax, N.S. (Dr. G. W. O. Moss, Honorary Secretary, 150 College Street, Toronto 5, Ont.) May 31-June 2, 1960.

**CANADIAN FEDERATION OF BIOLOGICAL SOCIETIES** (comprising the Canadian Physiological Society, the Pharmacological Society of Canada, the Canadian Association of Anatomists and the Canadian Biochemical Society), Third Annual Meeting, Winnipeg, Man. (Dr. E. H. Bensley, Honorary Secretary, Montreal General Hospital, 1650 Cedar Ave., Montreal 25, Que.) June 8-10, 1960.

**CANADIAN OTOLARYNGOLOGICAL SOCIETY (SOCIÉTÉ CANADIENNE D'OTOLARYNGOLOGIE)**, Annual Meeting, Jasper Park Lodge, Jasper National Park, Alberta. (Dr. Donald M. MacRae, Secretary, 324 Spring Garden Road, Halifax, N.S.) June 10-12, 1960.

**CANADIAN MEDICAL ASSOCIATION**, 93rd Annual Meeting, Banff, Alberta. (Dr. A. D. Kelly, General Secretary, C.M.A. House, 150 St. George Street, Toronto 5, Ont.) June 13-17, 1960.

**CANADIAN TUBERCULOSIS ASSOCIATION**, 60th Annual Meeting, Ottawa, Ont. (Dr. G. J. Wherrett, Executive Secretary, 265 Elgin St., Ottawa, Ont.) June 27-30, 1960.

**2ND WORLD CONGRESS OF THE WORLD FEDERATION OF SOCIETIES OF ANAESTHESIOLOGISTS**, Toronto, Ont. (Dr. R. A. Gordon, Chairman of Organizing Committee, 178 St. George Street, Toronto 5, Ont.) September 4-10, 1960.

### UNITED STATES

**7TH INTERNATIONAL ANATOMICAL CONGRESS**, New York. (Dr. D. W. Fawcett, Executive Secretary, Department of Anatomy, Cornell University Medical College, 1300 York Ave., New York 21, N.Y.) April 11-16, 1960.

**SOCIETY OF AMERICAN BACTERIOLOGISTS**, 60th Annual Meeting, Philadelphia, Pa. May 1-5, 1960.

**NATIONAL TUBERCULOSIS ASSOCIATION**, Annual Meeting, in conjunction with the American Trudeau Society, Los Angeles, Calif. (Sol S. Lifson, Director, Education and Public Relations, National Tuberculosis Association, 1790 Broadway, New York 19, N.Y.) May 16-18, 1960.

**Books Received**

Books are acknowledged as received, but in some cases reviews will also be made in later issues.

**Basic Physics in Radiology.** L. A. W. Kemp and R. Oliver. 329 pp. Illust. Charles C Thomas, Springfield, Illinois; The Ryerson Press, Toronto, 1959. \$10.25.

**Zehn Jahre Röntgenschirmbilduntersuchungen in der Bundesrepublik Deutschland.** (Ten Years of Fluoroscopy in West Germany.) Gertraut Reinecke. 118 pp. Illust. Georg Thieme Verlag, Stuttgart, W. Germany; Intercontinental Medical Book Corporation, New York, 1959. \$4.65.

**Evaluation of Changes Associated with Psychiatric Treatment.** M. Reznikoff and L. C. Toomey. 132 pp. Charles C Thomas, Springfield, Ill.; The Ryerson Press, Toronto, 1959. \$5.00.

**Report of the First Institute on Clinical Teaching.** Edited by Helen Hofer Gee and Julius B. Richmond. 233 pp. Association of American Medical Colleges, Evanston, Illinois, 1959. \$3.00.

**Les Entretiens de Bichat. Chirurgie et Spécialités.** 1959. (Colloquium of Bichat, Surgery and Specialties, 1959). Edited by Chigot, Bellin and others. 503 pp. Expansion Scientifique Française, Paris, 1959.

**Strahlenbiologie, Strahlentherapie, Nuklearmedizin und Krebsforschung. Ergebnisse 1952-1958.** (Radiation Biology, Radiotherapy, Nuclear Medicine and Cancer Research: 1952-1958). Edited by H. R. Schinz and others. Georg Thieme Verlag, Stuttgart, W. Germany; Intercontinental Medical Book Corporation, New York, 1959. \$65.50.

**Klinische Chirurgie für die Praxis.** In Vier Bänden. Band I. Lieferung (Clinical Practice of Surgery. In four volumes. Vol. I. Part I.). Edited by O. Diebold, H. Junghans and L. Zuckschwerdt. 184 pp. Illust. Georg Thieme Verlag, Stuttgart, W. Germany; Intercontinental Medical Book Corporation, New York, 1959. \$8.60.

**The Physiology of the Newborn Infant.** Clement A. Smith. 497 pp. Illust. 3rd ed. Charles C Thomas, Springfield, Illinois; The Ryerson Press, Toronto, 1959. \$13.75.

**Conquest of Age.** The extraordinary story of Dr. Paul Niehans. Gilles Lambert. 220 pp. Rinehart & Company Inc., New York; Clarke, Irwin & Company Limited, Toronto, 1959. \$5.25.

**Diseases of Medical Progress. A Survey of Diseases and Syndromes Unintentionally Induced as the Result of Properly Indicated, Widely-accepted Therapeutic Procedures.** Robert H. Moser, Major, Medical Corps, U.S. Army. 131 pp. Charles C Thomas, Springfield, Illinois; The Ryerson Press, Toronto, 1959. \$5.25.

**Instructional Course Lectures, 1959.** Fred C. Reynolds, editor. 335 pp. Illust. The C. V. Mosby Company, St. Louis, Mo., 1959. \$16.00.

**Manual of Skin Diseases.** Gordon C. Sauer. 269 pp. Illust. J. B. Lippincott Company, Philadelphia and Montreal, 1959. \$9.75.

**Microbial Variation.** Edited by V. D. Timakov, Member of the Academy of Medical Sciences of the U.S.S.R. 202 pp. Illust. Pergamon Press, New York, 1959. \$6.50.

**Acute Pericarditis.** David H. Spodick. 182 pp. Illust. Grune & Stratton Inc., New York and London, 1959. \$6.50.

**Beschäftigungstherapie. Einführung und Grundlagen. (Occupational Therapy. Introduction and Basis).** G. Jentschura and others. 299 pp. Illust. Georg Thieme Verlag, Stuttgart, W. Germany; Intercontinental Medical Book Corporation, New York, 1959. \$10.70.

**60 Jahre Medizinische Radiologie (60 Years of Medical Radiology).** Hans R. Schinz, Zuerich, Switzerland. 274 pp. Illust. Georg Thieme Verlag, Stuttgart, W. Germany; Intercontinental Medical Book Corporation, New York, 1959. \$4.65.

**Fortschritte der Kiefer- und Gesichts-Chirurgie. Ein Jahrbuch. Band V. (Advances in Facio-Maxillary Surgery. A Year Book. Vol. V.). K. Schuchardt. 369 pp. Illust. Georg Thieme Verlag, Stuttgart, W. Germany; Intercontinental Medical Book Corporation, New York, 1959. \$28.10.**

**Teaching Comprehensive Medical Care. A Psychological Study of a Change in Medical Education.** Kenneth R. Hammond and Fred Kern, Jr. 642 pp. Illust. Harvard University Press, Cambridge, Mass.; S. J. Reginald Saunders and Company Limited, Toronto, 1959. \$11.00.

**Pediatric Neurosurgery.** Ira J. Jackson and Raymond K. Thompson, editors. 564 pp. Illust. Charles C Thomas, Springfield, Illinois; The Ryerson Press, Toronto, 1959. \$18.25.

**L'Epaule Dououreuse (The Painful Shoulder).** R. Albouy and others. Expansion Scientifique Française, Paris, 1959. \$7.25 approx.

**Journées de Rééducation, 1958 (Conference on Rehabilitation, 1958).** C. Abadie and others. 250 pp. Expansion Scientifique Française, Paris, 1959.

**Journées de Rééducation, 1959 (Conference on Rehabilitation, 1959).** S. de Sèze and J. Debeyre. 54 pp. Expansion Scientifique Française, Paris, 1959.

**Techniques et Thérapeutiques en Pneumologie (Techniques and Therapy in Broncho-Pulmonary Diseases).** P. Bourgeois and J. Turiaf. 240 pp. Illust. Expansion Scientifique Française, Paris, France, 1959.

**Problèmes Actuels d'Endocrinologie et de Nutrition. (Present Problems in Endocrinology and Nutrition).** H. P. Klotz and J. Trémolières. 322 pp. Illust. Expansion Scientifique Française, Paris, France, 1959.

**Fermente—Hormone—Vitamine. Band I: 'Fermente' (Enzymes, Hormones and Vitamins, Vol. I: Enzymes).** R. Ammon and K. Myrbæck. 564 pp. Illust. 3rd ed. in 3 vol. Georg Thieme Verlag, Stuttgart, W. Germany; Intercontinental Medical Book Corporation, New York, 1959. \$19.45.

**Miscellaneous Notes (Fourth Series).** F. Parkes Weber. 31 pp. H. K. Lewis & Co. Ltd., London, England, 1959.

**Communicable Diseases in Schools. A Survey of Existing Legislation.** 65 pp. World Health Organization, Palais des Nations, Geneva, Switzerland, 1959. \$0.70.

**Lectures on the Scientific Basis of Medicine. Volume Seven. 1957-58.** British Postgraduate Medical Federation. 496 pp. Illust. The Athlone Press, University of London, England, 1959.

## UROLOGIST

Queen's University invites applications for the position of Associate Professor of Urology, to be Head of the University Department and of the Service in the principal teaching hospital. Applications should be addressed to the Dean of the Faculty of Medicine, Queen's University, Kingston, Ontario.

## The Royal College of Physicians and Surgeons of Canada

### ANNOUNCEMENT OF EXAMINATIONS

The examinations are held for admission to Fellowship in Medicine or General Surgery, with modifications of these Fellowship examinations for certain specialties, and for Certification in the approved medical and surgical specialties. **April 30, 1960**, is the closing date for submission of applications for the 1960 Examination. Earlier application is desirable.

Regulations and Requirements of Graduate Training relating to the Examinations, application forms, lists of Canadian hospitals approved by this College for advanced graduate training, and assessment of training application forms, may be obtained on request. Candidates should indicate whether they desire copies of the Medical or Surgical Regulations.

Address all communications to:

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The Royal College of Physicians and Surgeons  
of Canada,  
74 Stanley Avenue, Ottawa 2, Canada

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## MEDICAL NEWS in brief

(Continued from page 430)

THE YOUTH EXAMINER  
IN ISRAEL

A recent article in *Canada's Health and Welfare* (14, No. 9: 8, 1959) describes a measure which was introduced by the Israeli parliament in 1955 for the protection of children who have been the victims of sex offences. It is realized that police procedures usually undertaken in such cases may add emotional stresses to a child who has already been badly shaken. The Israeli Act provides for the appointment of youth examiners, who undertake certain functions normally performed by the police, together with additional responsibilities. It is laid down that a child under 14 years of age who has been involved in a sex offence can only be investigated, examined or heard as a witness with the permission of the youth examiner. Similarly, the youth examiner's permission is necessary before a statement by a

child as to an offence against morality committed upon his person or in his presence is admitted as evidence in a law court. The youth examiner normally sees the child in his own home or in his office, and it is reported that as a result of the new Act only 10% of children under 10, and 35% of those between 10 and 14 years, were allowed to give evidence in court. Provision is also made in the legislation for the youth examiner to give evidence in court in place of the child.

—  
ALLERGIC IMPLANTS  
IN CANCER

In a recent issue of *La Presse Médicale* (67: 1867, 1959) Doubrow, Roux and Chatelin of Paris describe some of their experience with implants of devitalized neoplastic tissue in patients treated for cancer at the Vaugirard and Laennec hospitals. These implants, prepared in accordance with a method described in a previous paper, are entirely innocuous al-

though they give rise to cutaneous, serological and histological allergic reactions in the host.

Immunological complexes, anti-kidney, anti-liver, and even anti-nucleus or anti-basal membrane are now biological realities that are assuming a clinical interest. This concept applied to malignant tumours (considered as independent organoid) possesses therapeutic possibilities. Just as chronic nephritis results in progressive destruction of renal parenchyma from nephrosclerosis—the outcome of an autotoxic mechanism—a malignancy may eventually succumb and be destroyed by a similar mechanism. Even without complete disappearance, the lesion could be excised with considerably less risk of spreading metastases or sprouting local recurrences. Search for specific antigens of desoxyribonucleic acid (DNA) from nuclei of neoplastic cells has not been too successful because even mild hydrolysis produces chemical alterations in the form of depolarization and denaturation of many types of albumins. Use

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of a graft of devitalized neoplastic tissue as a source of reactogen was attempted for the purpose of formation of specific antibodies.

The histological changes observed in malignant tumours from a host treated with implants include vasomotor alterations taking the form of haemorrhages, modifications in the connective tissue structure with an abundance of macrophages, and marked changes in the nuclei which become denuded or pushed near the edge of a cell. Grossly these resemble changes seen in lesions of sensitization.

The authors have been particularly interested in phenomena of karyophagia, cytodieresis, expulsion of the nucleus and karyolysis as signs of cellular distress in tumours so treated. According to them, the nucleocytoplasmic ratio is not simply a numerical relationship of volume or weight but an actual chemical reaction directed by ionic shifts between the two cellular components. The problem may boil down to that of oxygen utilization by cells under the in-

fluence of factors which may modify intracellular synthesis. This rests on hydrogen inorganic acceptors. The recent discovery by a Japanese research team of *malignolipin*, a phospholipid containing a pentavalent atom of phosphorus linked with the double bond to a free atom of oxygen on one hand, and to another atom of oxygen connected to an aliphatic chain on the other hand, may prove of major importance in this respect. Three case histories accompanied by histological preparations illustrate this article.

#### THE NUFFIELD FOUNDATION

The Fourteenth Report of the Nuffield Foundation, covering the period to March 31, 1959, is as interesting to read as previous ones have proved. As is well known, the foundation decided soon after the end of World War II that it should give support on a large scale to biology, since very little money was available from official sources in the United Kingdom.

The latest report draws attention to the fact that this position has changed, and that biology is no longer relatively neglected; nevertheless, it must remain a major interest, for the potentialities of biological research are only at a beginning. The foundation is therefore still supporting on a large scale work which will lead to a better fundamental understanding of biological processes in general, such as the control of enzyme synthesis, the sequence of events that link particular nuclear components with the organization of the cell, and the structure and behaviour of macromolecules. The largest biological grant offered during the current year was made to Edinburgh University, where a group of scientists are seeking to discover how the behaviour of the fibroblast is controlled and the nature of the enzyme systems involved. This work may prove related to research in rheumatism, as may the work at St. Mary's Hospital Medical School, London, on the biosynthesis of collagen.

(Continued on page 39)

S still TETREX

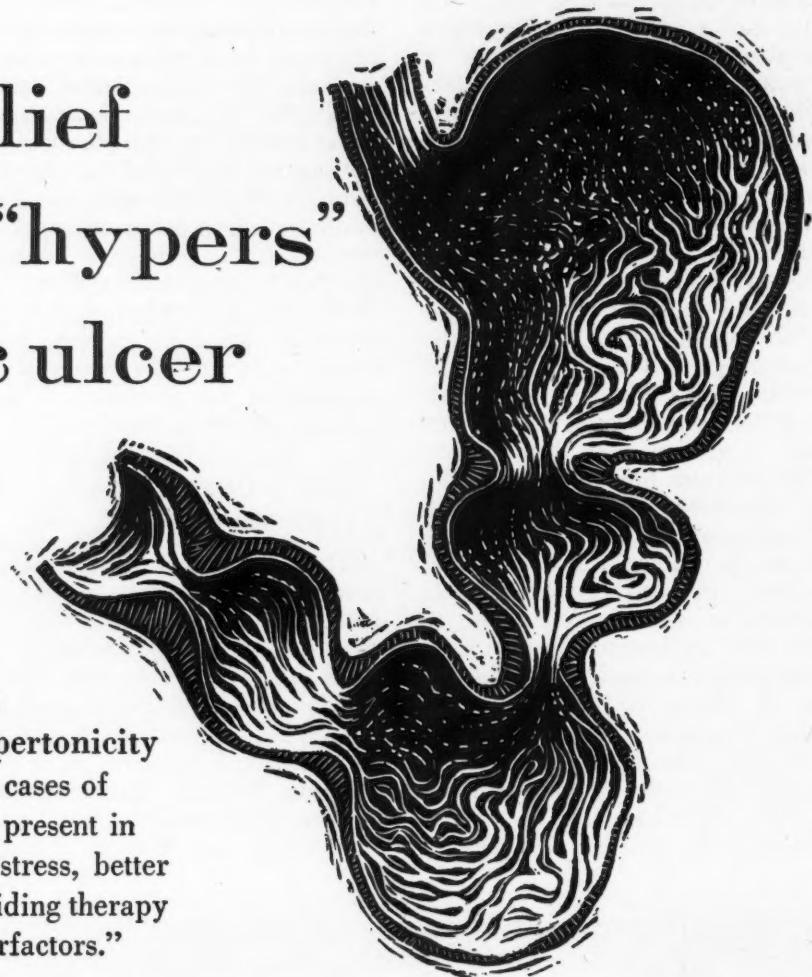
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**Dosage:** The average adult dose of Ancatropine Gel is 1 dessertspoonful administered 3 times daily, between meals, and at bedtime. If necessary, this dosage may be taken every 2 to 4 hours.

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Each tablet is equivalent to 1 dessertspoonful of the Gel.

**References:** 1. Morrison, S.: Am. J. Gastroenterol. 22:301 (1954). 2. Kastner, J. W.: Anca Laboratories. 3. Cahen, R. L., and Tvede, K.: J. Pharmacol. & Exper. Therap. 105:166 (1952). 4. Berger, A. R., and Ballinger, J.: Am. J. M. Sc. 214:156 (1947). 5. Sollman, T.: Manual Pharm., Saunders, Philadelphia, 1957, p. 936. 6. Dripps, R. D.: J.A.M.A. 139:148 (1949). 7. Fierst, S. M.: in Current Therapy, Saunders, Philadelphia, 1958, p. 237.

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MEDICAL NEWS in brief

(Continued from page 37)

At the cellular level, other activities include the effects of radiation on nuclear protein, the structure of cell walls, and the structure of the cell cortex. The Department of Human Anatomy is investigating the mechanism of common sensation, and following up the suggestion of Dr. Weddell and his colleagues that environmental changes which give rise to the sensations described as touch, warmth, cold and pain are not due, as was formerly believed,

psychiatric problems in general practice, the epidemiology of bronchitis and studies of cardiac surgery, metabolism and gastroenterology.

**CONGENITAL HEART  
DISEASE**

Congenital heart disease will be the subject of Deborah Hospital's second International Symposium on Current Concepts in Medicine. The symposium will be held on April 28, 29 and 30, 1960, in the Bellevue Stratford Hotel, Philadelphia, Pa.

Specialists in every branch of cardiology will present papers on the most recent developments in the diagnosis, treatment and surgical correction of heart ailments present from birth. Eight sessions have been planned during the three days, each closing with an open discussion and a summary of the subject material. The Deborah symposium is open to all interested physicians. There is no registration fee.

After the last formal session on Saturday morning, April 30, physicians are invited to visit Deborah Hospital. Bus transportation will be provided from the Bellevue Stratford Hotel to Browns Mills. There will be a luncheon at the hospital, after which the hospital's facilities for heart surgery will be demonstrated.

Further information from: Morton J. Schwartz, Public Relations Director, Deborah Hospital, 901 Walnut St., Philadelphia 7, Pa.

**DIURETIC AND ANTI-  
HYPERTENSIVE EFFECTS  
OF CHLOROTHIAZIDE  
AND MERCURIAL  
DIURETICS**

During a period of controlled sodium intake (9-214 mEq. per day), chlorothiazide and parenteral mercurial diuretics given to hypertensive patients both produced antihypertensive effects and were associated with a negative sodium and potassium balance. The hypotensive action of these compounds was investigated by Hollander *et al.* (*Circulation*, 19: 827, 1959) and found to be maintained after their withdrawal by restricting sodium intake and was also associated with a negative sodium

(Continued on page 41)



**PHYSICIANS**

**Ontario Mental  
Health Service**

A training program leading to eligibility for certification by examination in the specialty of psychiatry by the Royal College of Physicians and Surgeons (Canada) is offered while serving in the Ontario Mental Health Service.

Applicants are required to be in possession of a licence to practise medicine in the Province of Ontario. The starting salary is \$4,800 per annum with annual increments for satisfactory service.

Physicians to begin with are classed as Residents in Psychiatry. The training program leading to eligibility to sit the Certification Examination in Psychiatry by the Royal College of Physicians and Surgeons (Canada) is four years in duration. The usual plan is to place physicians during the first year in an Ontario Hospital approved by the Royal College of Physicians and Surgeons for training specialists in psychiatry. The second and third year is spent on secondment to the university of the applicant's choice in Ontario offering graduate training in psychiatry, subject, of course, to acceptance by the university. The universities in Ontario offering such training under this plan are Queen's University, University of Ottawa, University of Toronto and University of Western Ontario.

Physicians on successful completion of the University course and transfer to an Ontario Hospital are reclassified and, on recommendation, increased to a minimum of \$7,800 per annum with annual increments of \$400 per annum for satisfactory service. Successful completion of the Certification Examination in Psychiatry by the Royal College of Physicians and Surgeons (Canada), leads to immediate reclassification as a Medical Specialist with salary increase to \$10,000 per annum, with annual increments at the rate of \$500.

Superannuation benefits. Annual vacation. Sick leave gratuity. Living accommodation available in some hospitals at nominal rental.

Following certification as a specialist, a wide variety of positions are available as senior staff psychiatrists on hospital duty, in charge of mental health clinics, or in charge of a community psychiatric clinic in public general hospitals, or out-patient departments, etc.

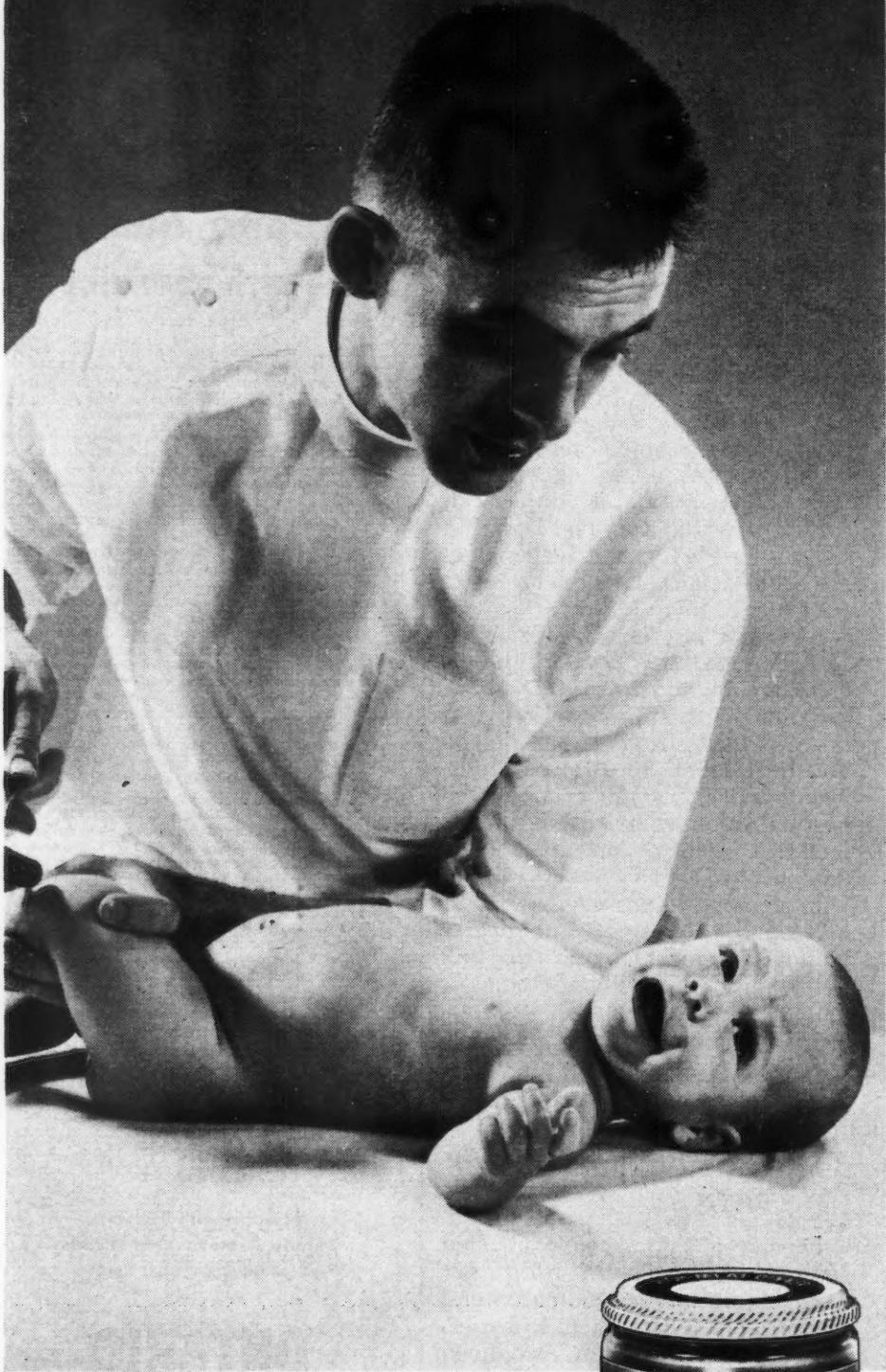
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Swift's 105 years of experience  
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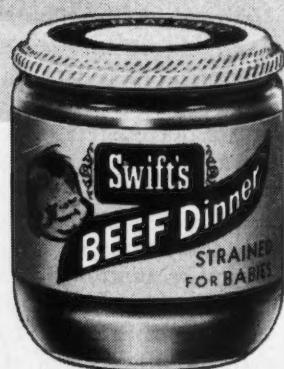
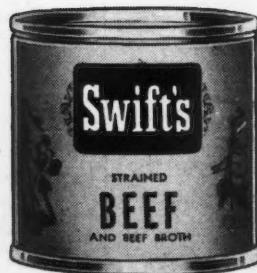
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emotional satisfaction that  
results from easier feeding  
times, we strain our meats  
smoother. And the flavours  
are so appetizing they aid in  
establishing sound eating  
habits early.

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MEDICAL NEWS in brief

(Continued from page 39)

balance, but not a negative potassium balance. However, experiments in which fluorohydrocortisone was added to chlorothiazide indicated that chlorothiazide is capable of maintaining a lowered blood pressure in the presence of an unreduced total body sodium. The natriuretic and hypotensive effects of chlorothiazide were increased by the addition of a steroid lactone to the chlorothiazide. The fact that chlorothiazide and parenteral mercurial diuretics have a hypotensive action in subjects with arterial hypertension but not in normotensive individuals suggests that these compounds may operate in the same manner against some arterial pressor mechanism.

MEDICAL LIBRARY  
ASSOCIATION

The third Medical Library Refresher Course Program, sponsored by the Medical Library Association, will be held on Monday, May 16, 1960, preceding the Association's 59th annual meeting at the Hotel Muehlebach, Kansas City, Missouri.

The courses, with the instructors, are as follows:

1. *Acquisition*: Mr. Dominick Coppola, Chief of Library Service, Stechert-Hafner, Inc., New York City.

2. *Administration*: Miss Marian A. Patterson, Librarian, Academy of Medicine Library, Toronto.

3. *Bibliography*: Dr. Estelle Brodman, Assistant Librarian for Reference Service, National Library of Medicine, Washington, D.C.

4. *Cataloging and Classification (Introductory)*: Miss Isabelle T. Anderson, Librarian, Denver Medical Society Library, Denver, Colorado.

5. *The County Medical Society Library*: Miss Mary M. Post, Librarian, Ramsey County Medical Society Library, St. Paul, Minnesota.

6. *Periodicals*: Mr. Paul Jolowicz, Chief, Scientific Periodicals Department, Walter Johnson, Inc., New York City.

7. *Public Relations*: Mrs. Henrietta T. Perkins, Assistant Librarian, Yale Medical Library, New Haven, Connecticut.

8. *Rare Books*: Mrs. Johanna

Gottlieb, Proprietor, Old Hickory Book Shop, Brinklow, Maryland.

9. *Reference*: Mr. William K. Beatty, Medical Librarian, University of Missouri, Columbia, Missouri.

10. *The Small Medical Library in the Hospital*: Miss Helen Yast, Librarian, American Medical Association, Chicago, Illinois.

11. *Teaching Bibliographic Research Methods*: Mrs. Bernice M. Hetzner, Librarian, College of Medicine, University of Nebraska, Omaha, Nebraska.

12. *Weeding*: Mr. Lee Ash,

Editor and Research Analyst, Selective Book Retirement Program, Yale University, New Haven, Connecticut.

Courses 1-6 will be given at 9 a.m. and courses 7-12 will be given at 2 p.m. It is possible to attend only one lecture from each group. Each session will be three hours in length, this period to cover the lecture and discussion. For active and associate members of the Medical Library Association the fee will be \$5.00 for two lectures or \$3.00 for each single

(Continued on page 42)

# Signemycin

TETRACYCLINE and OLEANDOMYCIN

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In 273

cases treated for skin and soft tissue infections

a representative case:

A 23 year old woman suffering from recurrent axillary abscesses was given 250 mg. of Signemycin 4 times daily for 8 days. Bacteriologic studies revealed *Staphylococcus aureus*. Previous therapy with chloramphenicol was to no avail while the condition cleared rapidly in response to Signemycin. There were no side effects.

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a representative case:

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cases treated for respiratory tract infections

a representative case:

A 53-year-old repair man suffered from chronic sinusitis with purulent drainage through a tooth socket. Previous therapy with penicillin and sulfonamides provided no results. There was immediate improvement and cessation of symptoms after 250 mg. Signemycin q.6.h. for 4 days. There were no side effects.

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case histories noted above on file Pfizer Canada

## MEDICAL NEWS in brief

(Continued from page 41)

lecture. For non-members the fee will be \$10.00 for two lectures and \$6.00 for each single lecture. Pre-registration is to end April 1.

For further details write: Mr. Thomas E. Keys, Chairman of the Refresher Course Committee, Mayo Clinic Library, Rochester, Minnesota.

## COLLEGE OF GENERAL PRACTICE OF CANADA

The College of General Practice of Canada intends to hold its 4th

Annual Scientific Assembly from February 29 to March 3, 1960, at the Queen Elizabeth Hotel, Montreal. Among the 25 speakers at the lectures and symposia will be persons from the United States, France and Russia. There will be three symposia devoted to the treatment of degenerative vascular diseases, to miscarriage and to exercise and physical fitness. Other subjects covered include hypertension, emphysema, obstetric and gynaecological bleeding, asthma, liver function tests, post-partum care, the role of general practice in medical education, anticoagu-

lant therapy, virus infections of the nervous system, specialized medical assistance in the U.S.S.R., diabetes, cancer, hypnosis in general practice, psychosomatic medicine, and toxæmias of pregnancy.

There will be an extensive scientific exhibition as well as a technical exhibition. A ladies' program has been arranged, and medical films will be shown daily. As in former years, attending doctors will be enabled to take a health examination. Luncheon speakers include Drs. Arthur Leclerc and E. Kirk Lyon. All scientific addresses and proceedings at luncheon, business and dinner meetings will be translated simultaneously into French or English. The social program includes a reception by the city of Montreal and the annual dinner and dance.

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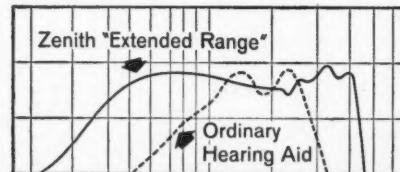
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**FLAT RESPONSE—NO "PEAKS"**—Sounds reproduced in "peaks" are amplified more than other sounds coming to you, causing distortion in what you hear. Annoying clothing noise and restaurant clatter within these "peaks" are then over-amplified causing hearing discomfort and lack of clarity.



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**Answers "Recruitment Problem."** If "recruitment" (the inability to stand loud noises) bothers you, then the "Extended Range" can be your answer. All sounds are far more normal, more perfectly balanced. Nearest approach to normal hearing yet achieved.

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## METHIMAZOLE AND CARBIMAZOLE IN HYPERTHYROIDISM

Methimazole and carbimazole were administered to 123 patients in a series of 203 trials, by a double-blind technique. Methimazole was given initially to 68 patients and carbimazole initially to 55 patients.

The effect of each of the two preparations is described by McGavack (*Am. J. M. Sc.*, 238: 1, 1959) in relation to rapidity and completeness of control, dosages used, and alterations in a variety of clinical manifestations. The two preparations appeared to be equally effective, weight for weight, in controlling the manifestations of hyperthyroidism.

Eight toxic reactions were encountered during the administration of methimazole and six with carbimazole. Two of these, in association with the use of methimazole, were urticarial-febrile reactions. The remaining reactions were manifested by one or more of a combination of the following: pruritus, localized rashes, and transient oedema.

The author concludes that methimazole and carbimazole are effective thyroid-blocking agents of approximately equal activity. Methimazole may be more toxic than carbimazole, but a good many more cases should be studied before a hard-and-fast conclusion is

(Continued on page 44)

as  
basic  
for the baby

as his bottle



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The original and still the most distinctive water-dispersible vitamin mixture for infants and pre-school children . . . does not contain synthetic, non-nutritive dispersing agents.

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stable uniform potency in readily-absorbed aqueous dispersion.

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pleasant-tasting — dropped on the tongue, or added to milk, formula or fruit juice.

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daily dose costs only 3 to 4½ cents . . . and calibrated dropper assures precise, waste-free dosage.

Each 5-drop daily dose (0.25 cc.) contains:

Vitamin A . . . . .	2000 Int. Units
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Vitamin C . . . . .	30 mg.
Vitamin B <sub>1</sub> . . . . .	1 mg.
Riboflavin . . . . .	0.6 mg.
Niacinamide . . . . .	4 mg.
Pyridoxine HCl . . . . .	0.6 mg.
Sodium iodide . . . . .	0.04 mg.

**MODES OF ISSUE:** 8 cc. (32 days' supply); 15 cc. (60 days' supply); 30 cc. (120 days' supply) and 50 cc. (200 days' supply).

### ALSO AVAILABLE

When Vitamins A, D and C alone are indicated . . . or for greater economy

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Each 5-drop daily dose (0.25 cc.) contains:

Vitamin A . . . . .	2000 Int. Units
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## MEDICAL NEWS in brief

(Continued from page 42)

drawn regarding this statement, as the differences in the present study are not statistically significant.

**GAMMA GLOBULIN IN THE MANAGEMENT OF ASTHMA ASSOCIATED WITH INFECTION**

Observations were made of the effect of prophylactic administration of pooled gamma globulin to

15 children, ages 3 to 11, with so-called "infectious asthma". The periods of treatment extended from eight to 14 months. Dosage of gamma globulin was 0.3 to 0.5 ml. per kg. of body weight every three weeks. Friedlaender and Weiner (*Am. J. M. Sc.*, 238: 18, 1959) report that some reduction in the frequency of upper respiratory infections and subsequent episodes of asthma was noted in eight patients during the periods of treatment. No definite improvement was noted in the remaining seven patients. Examination of

pre-treatment sera by paper electrophoresis was within normal limits in all but two cases. Immunochemical studies of these sera before treatment revealed low levels of gamma globulin in four and high levels in two. Post-treatment sera showed elevation in beta-globulin fractions in almost all instances. Levels of gamma globulin were increased in six and diminished in three cases after treatment. This study suggests that the results of prophylactic administration of pooled gamma globulin in such asthmatic children may be more favourable where a deficiency in serum gamma globulin level exists before treatment.

**"R Day"  
for the neuritis patient  
can be tomorrow**

"R Day"—when pain is relieved—can come early for patients with inflammatory (non-traumatic) neuritis if treatment with Protamide is started promptly after onset.

Protamide is the therapy of choice for either early or delayed treatment, but early use assures greatest efficacy.

For example, in a 4-year study<sup>1</sup> and a 26-month study<sup>2</sup> a combined total of 374 neuritis patients treated with Protamide during the first week of symptoms responded as follows:

*60% required only 1 or 2 daily injections for complete relief*

*96% experienced excellent or good results with 5 or less injections*

Thus, the neuritis patient's first visit—especially an early one—affords the opportunity to speed his personal "R Day."

Protamide is available at pharmacies and supply houses in boxes of ten 1.3 cc. ampuls.

Intramuscularly only, one ampul daily.



**PROTAMIDE®**

*Sherman Laboratories*  
Windsor, Ontario

1. Lehrer, H. W., et al.: *Northwest Med.* 75:1249, 1955.

2. Smith, Richard T.: *New York Med.* 8:16, 1952

**DR. ALBERT SCHWEITZER'S 85TH BIRTHDAY**

The point about Schweitzer is not whether he brought a gleaming modern hospital to French Equatorial Africa; the point is that he brought the kind of spirit to Africa that the dark man hardly knew existed in the white man.

Dr. Albert Schweitzer, Alsatian surgeon, humanitarian, philosopher and musical scholar who was 85 on January 14, went in 1913 to Lambaréne in French Equatorial Africa into the region of the Ogowe River and built a hospital in that area. After his arrival in 1913, he lived at the Protestant Missionary Station in Lambaréne that was founded in 1874 by American missionaries. In 1892 the Americans turned it over to the French Missionary Society, because in 1883 the region of the Ogowe River became a part of the French colony of Gabon. One of the American founders of the Mission Station at Lambaréne in 1874 was Dr. Nassau, who was a missionary and a physician at the same time. In 1913, an American missionary, Mr. Ford, was still in the service of the French Mission. He and Dr. Schweitzer became good friends and were there together during the First World War.

After the Second World War, Dr. Schweitzer and his staff devoted themselves especially to the fight against leprosy. Lepers came to the hospital from far and near. Soon their number became too large to bring these patients into the hospital, and Dr. Schweitzer let them settle on a hill situated in the forest close to the hospital. They

constructed a village of bamboo huts with roofs of raffia palm leaves. The patients had to spend from two to three years in hospital for treatment.

In 1954 Dr. Schweitzer was awarded the Nobel Peace Prize, which brought him about \$35,000, enabling him to start building a leper village of better construction. Dr. Schweitzer, a master carpenter himself, started to construct the buildings with the help of 60 lepers, who were in relatively good general condition.

Some travellers, returning from brief visits to Dr. Schweitzer's hospital, appear to be disillusioned, for it seems that the good doctor has not been making use of all modern medical facilities. However, Dr. Robert B. Salter, orthopaedic surgeon in Toronto, who visited the hospital last month, stated that the medical care was all right; modern hospitals, as we know them on this continent, would not do in Lambaréne. A couple of years ago Dr. Schweitzer wrote a little statement about his hospital work that clarifies the way he is doing his job:—

"The hospital functions differently from a normal hospital. For one thing, patients know they ought to be accompanied by members of their family. On admission, a specific bed is rarely assigned a patient. The patient is simply told: 'You ought to stay here for treatment. Try to find a place for yourself and those with you.' The patient then hunts around and usually finds some of his own tribe and settles in with them, even if no bed is free and he has to sleep on the floor. The African is often deeply depressed and sad if he is with 'foreigners', people not of his own tribe. The family members accompanying the patient prepare the patient's food, except in cases of great gravity where a special diet is required. The relatives are asked to do some odd jobs about the hospital grounds to help out a bit, as are also the convalescent patients. The hospital's volume of work is so enormous that the staff alone cannot do it all. The self-help on the part of the patients and their relatives is both of practical value to the hospital and of experimental value to the Africans."

In 1955, Dutch-born Mrs. Hanna Oberman, one of the associates of Dr. Schweitzer, came to Canada to enlist the aid of Canadians in the

Dr. Albert Schweitzer Fund; donations can be sent to the Dr. Albert Schweitzer Fund, c/o The Royal Bank of Canada, King and Yonge Streets, Toronto. Trustee of the Fund, which works under the patronage of The Rotary Club of Forest Hill (Toronto), is Dr. J. C. Tupker. Would it not be a nice thing if the Fund—on the occasion of the 85th birthday of Dr. Schweitzer—could send a really large amount of money to him who has been called the greatest living man?

## REFRESHER COURSE ON MEDICAL AND SURGICAL ADVANCES IN PÆDIATRIC CARE

The Departments of Pædiatrics and Surgery of the University of Manitoba have announced a refresher course on "Medical and surgical advances in the care of infants and children", to be given on Thursday, Friday and Saturday, March 24, 25 and 26, in the auditorium of the Medical College,

(Continued on page 46)

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*for free-flowing "therapeutic bile"...*

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**MEDICAL NEWS in brief**  
(Continued from page 45)

Winnipeg. The guest speakers will be Dr. Robert A. Good, research professor, department of pediatrics, University of Minnesota Medical School, and Dr. Tague C. Chisholm, associate professor of surgery, University of Minnesota Medical School. The subjects will include: use and abuse of steroids; surgical correction of congenital malformations, and clinical aspects of dysproteinæmia. Panel discussions will cover malignancy in childhood, virus diseases, parenteral fluids, and infections. On Saturday morning, March 26, there will be medical and surgical grand rounds in the Children's Hospital. Application for registration for this course should be addressed to: Paediatric Refresher Course, Room 109, Manitoba Medical College, Emily and Bannatyne Ave., Winnipeg 3, Manitoba.

**COURSE ON ARTHRITIS**

The University of Buffalo School of Medicine announces a course on arthritis to be held on Wednesday and Thursday, March 2 and 3, 1960. Emphasis will be on recent advances in the therapy of arthritis, including evaluation of newer drugs and the use of physiotherapy and rehabilitation. Cases will be presented as a basis for discussion of pathogenesis, differential diagnosis and management of various types of arthritis. The fee for the course is \$30. Further information from Department of Postgraduate Education, University of Buffalo School of Medicine, 3435 Main Street, Buffalo 14, New York.

**BRITISH COLUMBIA  
OTO-OPTHALMOLOGICAL  
CONFERENCE**

The 1960 British Columbia Oto-Ophthalmological Conference will be held in Vancouver, B.C., on May 11, 12, and 13. Guest speakers will be Dr. LeRoy A. Schall of Boston, in otolaryngology, and Dr. Charles L. Schepens of Boston, in ophthalmology. There will be lectures, round-table discussions, and film sessions, and a social program for the ladies.

Those interested in attending may obtain further information from Dr. G. A. Badger, 925 West Georgia Street, Vancouver 1, B.C.

**SESQUICENTENNIAL OF  
YALE SCHOOL OF  
MEDICINE**

The Yale School of Medicine will celebrate a century and a half of existence on October 28 and 29 of this year. The occasion will be marked by meetings, exhibitions and addresses suitable to the occasion. Among a notable group of guest speakers will be Sir Howard Florey of Oxford, England. Complete details of the program will be announced later. Other events associated with the sesquicentennial celebration will take place during the academic year 1960-61. These include an exhibition of medical art at the Yale Art Museum and a scientific meeting to be held in conjunction with the dedication of a new medical school auditorium.

In October 1810 the Connecticut General Assembly granted a charter to Yale College for the establishment of the Medical Institution of Yale College, and the fifth medical school in the United States came into being. The first medical faculty at Yale was a notable one, containing Eneas Munson, foremost authority on *Materia medica*, Nathan Smith and Benjamin Silliman, still counted among Yale's greatest, Eli Ives and Jonathan Knight, leaders in medicine and each to become President of the American Medical Association. From the start the Connecticut Medical Society was a partner in the enterprise and worked in close cooperation all during the first half century of the School's existence.

**LIFESPAN OF PLATELETS**

So far the only successful direct method of labelling human platelets is that employing isotopically labelled di-isopropylfluorophosphonate (DFP<sup>32</sup>). To determine the lifespan of platelets Alfors and associates (*Lancet*, 2: 941, 1959) used DFP<sup>32</sup> dissolved in peanut oil or physiological saline. This was injected intramuscularly in a single dose in selected patients, and venipuncture was performed the next day and repeated daily until the platelet radioactivity became too low to measure. The lifespan was deduced from a plot of DFP<sup>32</sup> content ( $\mu\text{g}/5 \times 10^{12}$  platelets) against time.

This procedure was carried out in patients with neoplastic and haema-

tological diseases, but not in normal subjects. In polycythaemia the platelet lifespan was found to be reduced when the peripheral platelet count was low and increased when the count was high. In thrombocythaemia the lengthened lifespan of the platelets suggests some impairment in the mechanism of removing platelets. The improvement in the clotting defect and the reduction of the platelet count following P<sup>32</sup> therapy confirms the intimate connection of the platelets with the bleeding tendency. Shortened platelet survival may be attributed to one of three causes—low platelet vitality (because of interference with megakaryocytic maturation), splenic hyperfunction, or the presence of auto-antibodies.

**LUNG ABSCESS IN THE  
MENTALLY ILL GIVEN  
ELECTRIC SHOCK  
TREATMENT**

Any patient who is receiving electroconvulsive treatment for mental illness and develops a sustained elevation of temperature should have an immediate chest radiograph and should be considered to have a lung abscess until proved otherwise. Patients who are to have electric shock treatment should have a dental survey before the administration of such treatment. The greater the amount of material within the mouth immediately prior to such treatment the higher the incidence of tracheobronchial aspiration.

Care should be taken during electroconvulsive therapy to prevent aspiration of oral or gastric contents into the tracheobronchial tree. When a patient is found to have a lung abscess, bronchoscopy, aspiration of sputum, cultures, and the administration of appropriate antibiotics are mandatory. Pulmonary resection was required in every case in which bronchoscopy and antibiotics had been delayed longer than three months after the initial aspiration. Careful observance of these procedures will reduce the incidence of pulmonary complications following electric shock treatment and reduce the mortality rate when they do occur.—B. H. Burch *et al.*, *Dis. Chest*, 36: 52, 1959.

(Continued on page 48)

a new corticoid-muscle  
relaxant-analgesic  
from Schering

What is its name?

# DELENAR\*

**What is it?**

Delenar is a combination of dexamethasone (Deronil\*) 0.15 mg. — today's lowest dosage corticosteroid, orphenadrine HCL 15.0 mg. — muscle relaxant and mild mood elevator, acetylsalicylic acid (as an aluminum salt) 300 mg. — analgesic and antipyretic without astringent taste or acid odor.

**What are its indications?**

Mild to moderate rheumatic and traumatic conditions affecting joints, tendons and soft tissue; mild rheumatoid arthritis, mild or moderate spondylitis, subacute or interval gout, bursitis, low-back strain, synovitis, tendosynovitis, neuritis, shoulder-hand syndrome, nonspecific low-back pain, torticollis and whiplash-injuries; appears to be useful in symptomatic treatment of certain dermatological conditions such as atopic and contact dermatoses.

**What are its advantages?**

The mutual potentiation of corticoids and salicylates permits lower dosages for equal or greater therapeutic effect and less likelihood of undesirable side effects. Deronil is today's lowest dosage corticosteroid; ASA as an aluminum salt has greater physical stability and helps avoid any possible gastric irritation. Orphenedrine HCL, a derivative of diphenhydramine HCL, has greatly increased anticholinergic but considerably decreased anti-histaminic effect. Reports note rapid relief of subjective aches, stiffness and pain-on-motion followed by objective improvement, including a general sense of well-being.

**What is its dosage?**

DELENAR — 2 tablets q.i.d. gradually reduced to adequate maintenance level, or discontinued. Best administered after meals.

**How is it supplied?**

DELENAR tablets are available in bottles of 100.

\*Trade mark

*Schering*  
CORPORATION LIMITED



## MEDICAL NEWS in brief

(Continued from page 46)

## AMERICAN COLLEGE OF SURGEONS

Dr. John Paul North of Dallas, Texas, will become Director of the American College of Surgeons on January 31, 1961, in succession to Dr. Paul R. Hawley who has directed the College since March 1950. Dr. North is chief of the surgical service of the Veterans Hospital, Dallas, and professor of clinical surgery at Southwestern Medical School of the University of Texas. He has shown particular interest in the field of trauma, and is the representative of the College on the President's Committee for Traffic Safety.

## WHO BOOKLET ON VACCINATION REQUIREMENTS FOR TRAVELLERS

Prospective travellers to foreign lands will be able to find the vaccination requirements of each country they plan to visit, in a booklet just published by the World Health Organization. Entitled "Vaccination Certificate Requirements for International Travel", the new WHO publication puts together for the first time the vaccination requirements of 184 nations and territories around the world.

For each country or territory listed the booklet indicates whether vaccination against cholera, smallpox or yellow fever is required or simply recommended. These are the only vaccinations health authorities may require of international travellers under the International Sanitary Regulations.

The booklet will be published in an English-French bilingual edition priced at \$2.75, which will be sold through WHO sales agents in the Organization's Member Countries. WHO will periodically revise and bring the vaccination information up to date.

## IS VOCATIONAL REHABILITATION JUSTIFIED IN A TUBERCULOSIS HOSPITAL?

In order to determine whether rehabilitation programs are justified in tuberculosis hospitals, 165 outpatients were studied inten-

sively by Marion and Salkin (*Am. Rev. Respiratory Dis.*, 80: 59, 1959) from the standpoint of their medical, educational, vocational, and marital histories during the pre-hospital, hospital, and post-hospital periods.

The patients were classified into four groups: a rehabilitation group, a non-rehabilitation group, a premature discharge group, and a "non-need" group consisting of those who returned to their exact pre-cure jobs.

On the basis of post-hospitalization adjustment, the rehabilitation group surpassed the non-rehabilitation and premature discharge groups in less unemployment, greater educational gain, greater occupational level gain, shorter time to get into a job or training, and shorter time to full-time work or training. An additional comparison of 33 matched pairs of subjects from the rehabilitation and non-rehabilitation groups demonstrated again a better post-hospital-

In patients with disturbances of the inner ear, Arlidin produced remission of their chief complaint (impaired hearing, tinnitus or vertigo) in over 50% of cases. "Significant hearing improvement" occurred in 32 of 75 patients.<sup>1</sup> Rubin and Anderson<sup>1</sup> attribute these symptoms of circulatory disorders of the inner ear to "labyrinthine artery insufficiency" due to spasm or obstruction of the vessels. They presumed that improvement could be produced by an agent capable of increasing blood flow and consider that the efficacy of Arlidin in this condition is due to its superior vasodilating and vasorelaxant effects.

1. Rubin, W., and Anderson, J. R.: *Angiology*, Oct. 1958.

ization vocational adjustment by the rehabilitation group.

It is considered, therefore, that rehabilitation programs in tuberculosis hospitals are vocationally justified.

#### "BLIND" GASTRECTOMY

"Blind" gastrectomy is defined as a standard two-thirds to three-quarters gastrectomy carried out on account of massive gastrointestinal haemorrhage when an obvious lesion is not present on ex-

ternal examination or on palpation of the stomach and duodenum. Bruce and Dudley report their results in 31 cases (*Lancet*, 2: 992, 1959). Lack of clear history of digestive upsets did not preclude the existence of a superficial ulcer, usually gastric but occasionally duodenal, from which fatal bleeding would have occurred if gastrectomy had not been undertaken. Subtotal gastric resection removed the lesion in 75% of patients and arrested the bleeding in the ma-

jority of the remainder. The overall mortality in this group was 10%.

Many of this group of patients, whose bleeding is less severe, recover with medical treatment. If massive bleeding continues after gastrectomy, only re-operation is likely to save the patient.

#### RESECTION FOR PULMONARY TUBERCULOSIS IN HAWAII

A detailed analysis was made by Gebauer and Mason (*Am. Rev. Respiratory Dis.*, 80: 6, 1959) of all of the cases of resection for pulmonary tuberculosis at a large American hospital, occurring between August 1946, and January 1957, with follow-up observations ranging from two to more than twelve years.

The evaluation supported the general impression that the nature and volume of the untoward results parallel the extent and state of the disease. The results further indicate that, even when the patient's tubercle bacilli are only partially drug-susceptible, resectional surgery may provide useful life and mitigation of illness, taking second place only to antimicrobial therapy itself. In the proper management of pulmonary tuberculosis, a regimen of antimicrobial therapy should be initiated with the hope of rapidly bringing the patient to a point where surgical excision either is unnecessary or can offer the best opportunity for complete recovery and shortened hospital stay.

Inadequate preoperative and postoperative antimicrobial therapy and a less than meticulous selection of patients for surgical treatment produced a 30% rate of untoward incidents related to the operation or the disease. On the other hand, surgical excision was completely successful when the following were present: multiple-drug preoperative therapy was the initial treatment for tuberculosis and exceeded six to eight months; the contralateral lung was normal; the response to drug therapy was rapid and favourable, with sputum conversion; the original cultures displayed drug susceptibility, and culture of the resected specimen yielded no tubercle bacilli; and the multiple-drug therapy was continued postoperatively, in or out of the hospital, for at least a year.

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imbalance,  
impaired hearing  
in inner ear  
circulatory disorders

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